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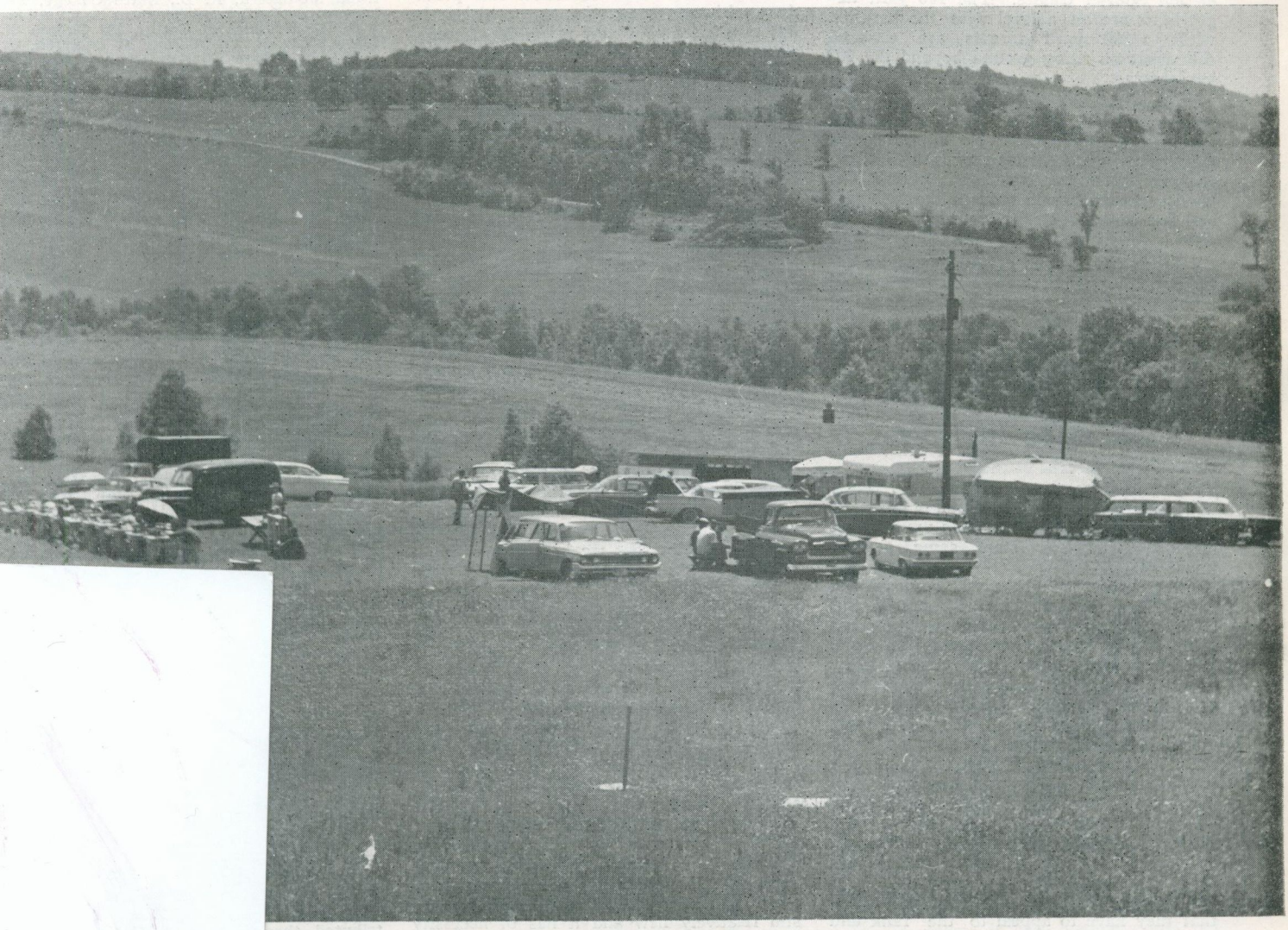
Precision SHOOTING



a magazine for Shooters by Shooters

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THE COVER PHOTO

The very attractive and pleasantly located range of the South Creek Rod and Gun Club at Fassett, Pennsylvania. The photo was made by Harry Bente of Ithaca, N. Y. while a mid-summer match was in progress. The club holds several benchrest matches during the season for the Varminter and Sporter classes. The 100 yard target butts are on a level with the benches, while to 200 yard targets are elevated somewhat on rising ground beyond the 100 yard butts.

Jerry Arnold, the club secretary, comments: "For those who have never attended any of the matches at our club, they are missing one of the nicest ranges in the eastern part of the country, to shoot on. The lawn is completely mowed to the 100 yard and 200 yard targets, and you can see conditions very well. It is a pleasant sight.

"Our club is one of the newest in the N. B. R. S. A. but we are giving a good account of ourselves. If the attendance at our shoots continues to grow we are going to cover the shooting points, which will make shooting on our range even nicer. I hope some of the shooters that read this will want to come and shoot on our range."

A LETTER TO THE EDITOR

Dear Phil:

The two-part story which I recently wrote for GUNS & AMMO has provoked quite a bit of response. That's what it was intended to do, i. e. start some positive thinking!

As expected, much of the response has been critical of me. Also as expected, this criticism comes from the group that has been running the benchrest game for years. The comments I've received from many shooters and interested non-shooters have been far from critical, however.

Those who scheduled the Johnstown match this year pulled the same stupid stunt they've pulled before: scheduling a four-day match (that's too long) and starting it on Thursday before Labor Day weekend. It would be interesting to see a show of hands on how many shooters can ask their bosses for Thursday and Friday off . . . before Labor Day weekend! Unless those who run benchrest rapidly learn that they have to appeal to the "rank and file" to support the game, the present "rate of decline" of the NBRSA will continue.

President Hart has publicly lashed at me for getting some figures wrong. Let's take his figures: membership seven years ago—900. Present membership—700. Anybody can project President Hart's figures and compute just how long the NBRSA is good for at its present rate of decay. And they want you to believe I'm wrong when I say bench rest is dying.

Unless and until the rank and file membership makes itself heard—and felt—it's a safe bet that membership will continue to slide. You members who read this ought to make yourselves heard!

Cordially,

L. R. "Bob" Wallack

THE EDITOR COMMENTS: In the main, I disagree with Bob Wallack regarding the NBRSA. I do agree, however, that Bob's closing suggestion is a very good one. I think the NBRSA Directors would welcome having the members do just what Bob suggests—"make themselves heard." As the NBRSA, Inc. organization is set up, the proper procedure for a member to follow in making himself heard is to first contact the elected NBRSA Director of the Region in which he resides—his Regional Director is his representative at NBRSA board of directors meetings. Names and addresses of the directors are listed regularly on the NBRSA title page in this magazine. If a member does not receive some response from his Regional Director within a reasonable period of time, he may and should then directly contact the NBRSA President by letter. If it is too much bother for a member to follow this procedure with any suggestion or criticism he has to offer, then it may reasonably be considered that he is not especially interested in active participation in the affairs of the organization he is a member of.

NOW, SOME QUESTIONS: Just why need one think that an organization must be BIG in order to be a GOOD organization?

The original first stated objective of the NBRSA was "The development and encouragement of extreme accuracy in rifles, ammunition, equipment and shooting methods." The NBRSA and the accomplishments of its members has become widely and favorably known from the results obtained in pursuing that objective. Would it be following the path of wisdom to now abandon that goal of EXCELLENCE and substitute it with the MEDIOCRITY OF THE AVERAGE for a future goal? May it not be better for you and I, rank-and-file members of the NBRSA, to continue to encourage a relatively few dedicated perfectionists to strive for still further excellence in rifle accuracy, than to petition our elected directors to adopt programs that we hope will make it EASIER for us to make a relatively good showing in benchrest matches? Isn't it probable that making competition easier for the average mediocre competitor will also make it easier for the better competitors and that the general level of accomplishment may be expected to deteriorate from lack of incentive for improvement?

Answers to the foregoing questions from MEMBERS of the NBRSA may chart the future course of the bench rest organization and its standing in the rifle shooting world.

NOT IN REVERSE: The NBRSA and benchrest have not been standing still and are not going backward. Mistakes have been made and no one would deny that. Organized benchrest competition is still relatively new and it has of necessity had to proceed by cut-and-try methods, and will have to continue by those methods for some time into the future. However, in this writer's opinion, the trend has been to improvement and expansion of programs. The basic policy for benchrest has by its results proven sound.

The organized benchrest movement has from its beginning been more largely a competition of arms and equipment than

(Next page)

STATEMENT OF OWNERSHIP

STATEMENT REQUIRED by the act of August 24, 1912, as amended by the acts of March 3, 1933, July 2, 1946 and June 11, 1960 (74 Stat. 208) showing the ownership, management, and circulation of:

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1. The names and addresses of the publisher, editor, managing editor and business managers are:

Publisher — PRECISION SHOOTING, INC., 64 Depot St., Lyndonville, Vt.

Editor—P. H. Teachout, 64 Depot St., Lyndonville, Vt.

Managing editor—same as above

Business manager—same as above

2. The owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual, must be given.)

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NONE

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5. The average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above was: (This information is required by the act of June 11, 1960 to be included in all statements regardless of frequency of issue.) 1911

P. H. Teachout, Editor

(Signature of editor, publisher, business manager, or owner)

Sworn to and subscribed before me this 27th day of September, 1961.

James C. Ball

(My commission expires Feb. 10, 1963)

any other form of rifle shooting. Its competitive programs have served as a proving ground for experimenters and perfectionists in rifle accuracy and is still serving that purpose.

Benchrest competition may never attract a big following, probably won't, but this writer believes there is a place for that type of program, for those people it does attract. Why should not benchrest continue to try to be GOOD rather than just BIG?

P. H. T.

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Tune up your deer rifle, your bench rest rifle, your target rifle and yourself at the

HUTTON RIFLE RANCH . . .

Official Range of GUNS and AMMO magazine
20 Covered Bench Rests with Spotting Scopes
Midway between Highway 101 and 101-A, in
Topanga Canyon, near Santa Monica, Calif.

VOLUME FILES AVAILABLE

We can now supply Volume Files for Precision Shooting. These are not binders but are fiber-board boxes to fit the magazine which appear as a book when in the bookcase. The file is attractively labeled PRECISION SHOOTING. One file will hold the first five volumes of Precision Shooting. The Volume File will keep your magazines together, in neat order, but single copies may be removed at will, for reference, when that is desirable.

Cost of the files from Precision Shooting Inc. is $2.50 each.

ELLIASON JOINS COLT'S STAFF

George Elliason, nationally known gun accurizer, has become a member of Colt's Patent Firearms headquarters staff in Hartford, Conn., it was announced by Fred A. Roff, Jr., President.

Elliason was retained by Colt's to head the company's newly established Custom Gunsmithing Department, which they claim is the finest equipped and best staffed shop of its kind in the country. The new segment will cater to the specific desires of expert target shooters, hunters and plinkers who demand super-accuracy in weapons.

A master shooter, Elliason has been engaged since 1952 in his own gun accurizing business in Detroit, where he also resided. Prior to that time he was employed by the General Motors Corporation as a research and development mechanic.

Elliason gun sights are widely utilized by America's foremost target shooters and marksmanship units of the Armed Services. His accuracy and conversion work on target pistols is a matter of considerable renown.

According to Colt officials, Elliason's accomplishments in his specialized field will be greatly enhanced by Colt's modern machine tools and qualified engineering and gunsmithing staffs.

Colt's custom gunsmithing is an entirely new service available to Colt dealers and to the public at large.

LONG JACKETS FOR PISTOL BULLETS

Frank Hemsted, Culver City, California, would like to find out if enough home-swagers of pistol bullets would be interested in obtaining bullet jackets long enough to make .357 and .44 caliber soft point bullets for both pistol and rifle to make it practical to arrange for the manufacture in the quantity that a manufacturer would require a firm order for (probably 50,000 minimum). If there is enough interest in such jackets, Hemsted would try to arrange for having them made, and for distribution.

He would also like to have suggestions as to jacket wall thickness and length that might be desired. His starting suggestion is a wall thickness of .010 to .012 inch for light plinking bullets and/or .025 to .028 inch for hunting bullets. His suggestion for length would be such as to make a soft point bullet, similar to the NORMA design, of 135-140 grs. for .357 cal. and 240-250 grs. for .44 caliber.

Any or all of you home pistol bullet makers who would be interested in having such long jackets made available should indicate that interest by writing directly to:

Frank A. Hemsted
P. O. Box 171
Culver City, Calif.

WINCHESTER MODEL 52D

I have just before going to press had the opportunity of examining and shooting the new Winchester Model 52D smallbore target rifle in the heavy barrel version.

My prone shooting is nothing to judge rifle accuracy from but my scores with the new rifle were at least the equal of my average with my own older 52 match rifle under similar shooting conditions. I don't think anyone need worry about the accuracy potential of the 52D. The production rifle, as it would come over the counter, is a comfortable rifle to shoot and that would contribute to good performance with it.

The elimination of a magazine to make a true single shot should stiffen both the receiver and stock and be an improvement in this important area of a rifle.

The new front swivel-handstop unit with its rounded contours offering a choice of bearing surfaces for the hand is especially welcome to a southpaw shooter and is a comfort feature for the right-hander as well. The accessory rail nearly the full length of the under side of the forearm permits adjustment of the handstop to any desired position, quickly and conveniently. The handstop is locked firmly in position with a friction clamp. The accessory rail also provides for a palmrest and its convenient positioning

The trigger assembly is said to be improved. All I can say is that I was not conscious of any fault with it while shooting the rifle; the pull seemed crisp and uniform. The stock seemed comfortable to me with the comb giving desirable support to the cheek for scope sight aiming.

The value of the two-point bedder at the forearm tip may be debatable, but it is there for those who find it desirable to use it and the barrel can be shot fully free-floating if that seems desirable—a case of choice to suit the individual shooter and the individual rifle.

I'd call the 52D a step forward in the evolution of an excellent smallbore target rifle.

P.H.T.

HANDI-BINS

In our report on Handi-Bins, the neat and practical little nesting trays for storage with ready availability of small parts and accessories, in our February 1961 issue, my one criticism was that they did not offer protection from dust for storage of loading dies and similar accessories.

The Container Development Corp., 415 Monroe Street, Watertown, Wisconsin, the makers of the Handi-Bins, are now providing clear plastic covers for the bins which do give the protection from dust and in no way interfere with ready visibility of the contents or the nesting feature. The Handi-Bins, with the present dust protection feature, offer a very practical and convenient container for open shelf storage of small parts and accessories in the gun or loading room, and are relatively inexpensive.

The Handy-Bins are available in sizes from 2" X 4" X 3½" to 5" X 5¾" X 9¾", with or without the plastic covers. Full information may be obtained from the manufacturers.

CONCAVE BASE BULLETS

Shortly after reading of Ernest Stuhlschuter's method for removing bullets which fail to eject from the swaging die, due to a short jacket that fails to point up enough to support the ejection pin, I had occasion to test it myself.

In swaging a batch of .30 caliber bullets, I had two of those bullets that failed to point up enough to support the ejection pin and, by my past methods, would have been a time consuming nuisance to get out. Followed Ernest's directions (starting page 16, bottom of 3rd column, September issue) and ejected the bullets with a minimum of bother and wasted time. That sure is a time and temper saving kink.

Like Ernest, I was intrigued by the very uniform, symmetrical and rather deep concave bases on the bullets ejected by that system; enough so to be more than just curious of how well such bullets might shoot.

At the end of that run of swaging I made 20 of those concave bullets for test shooting. The 20 were the same as the rest of that batch of bullets except for having the concave bases. I was not very precise in the making—merely cut pieces of discarded core slugs to as nearly uniform size as I could judge by eye, to serve as forming plugs behind the bullet jacket base. The resulting concave bases looked quite uniform, though of course there must have been some variation.

Loaded the 20 bullets in .30-06 cases with a charge of 46 grs. HiVel #2 (a load that shoots very well for me with bullets of 145-150 gr. weight) and fired them in my Springfield NRA Sporter. Shot four 5-shot groups at 100 yards from rest. Average for the four groups was 1.55 inch; which is normal average accuracy for that rifle and load.

Results of that one very small test would seem to indicate that concaving the bases of bullets in this manner does not harm their accuracy, but it wouldn't appear that there were any benefits that would make the additional work of swaging such bullets worthwhile.

If any others should do any experimenting with making and shooting such concave base bullets, in any caliber, we would appreciate it if they will report their results for publication.

P. H. T.

NOTES ON RIFLE BEHAVIOR

Col. Townsend Whelen

I was particularly interested in Ernest Stuhlschooter's "STOOL SHOOTING STUFF" in the August issue of PRECISION SHOOTING. Particularly on the behavior of rifles. Perhaps I can shed a little light on this subject in view of my very long experience. As is fairly well known among your older readers I have been almost continually testing the various makes, models, and calibers of rifles for accuracy and reliability since 1899—that is for sixty-two years. And during that period I have been perhaps sufficiently skilled in marksmanship as to make my tests fairly reliable. And from the very start I have kept most complete records of almost every shot fired. Because I had spent all my boyhood summers in the Adirondacks hunting with the rifle, I was more interested in the hunting rifle rather than those for competitive target shooting. With the hunting rifle the most important matter in accuracy and reliability is where the first shot strikes, because it is not often that you get a second shot. Therefore in my records I have always marked the first shot from a clean, cold bore on the recorded target as "CC." I have these records almost from the very start.

I am aluding here only to the well made bolt action rifles and to the older equally well made single shot rifles. As all well informed riflemen know, the lever, pump and semi-automatic rifles are rather unpredictable in their performance. Also I must divide the first types of rifles into two types. Those firing lubricated lead bullets, either with black or smokeless powder, and those firing jacketed bullets with smokeless powder.

Lubricated Lead Bullets

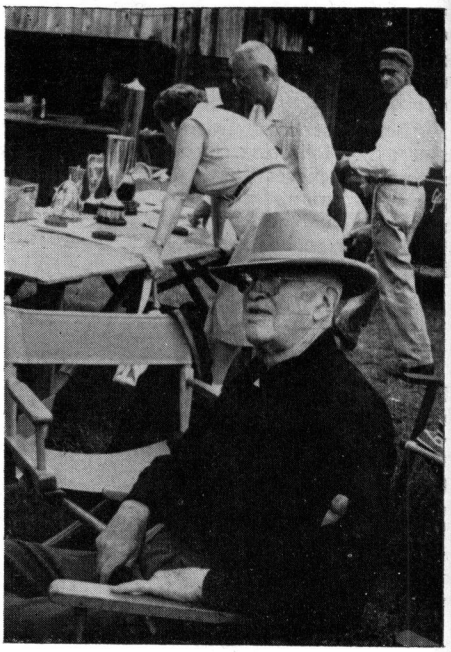
As is quite well known rifles fired with such bullets have a decided tendency to deliver the first shot or two rather wide from subsequent shots, based on the sight adjustment correct for the subsequent shots. The first one or two shots fired from a clean, cold bore usually strike high, but not invariably so. This is why in all competitive small bore shooting with the .22 Long Rifle cartridge, sighting and warming shots are always allowed, and a separate bullseye is provided for this purpose. In 1929 to 1932 I was stationed at Springfield Armory and it was part of my duty, together with Al Woodward, to conduct the acceptance test for all .22 Long Rifle ammunition purchased by the Federal Government. Each lot of ammunition from the lowest bidder was tested by firing ten consecutive 10-shot groups at 100 yards from a standard rifle of known accuracy, rifle held in the Woodworth cradle rest. Before starting an official test at least ten shots were always fired on a separate target, and these shots always showed that the rifle shot better as it was warmed and fouled. Then the ten record groups were fired. Moreover, an examination of all of these series of ten consecutive shots invariably showed that the first group was never the smallest. Each 10 shot group was fired in a time period of about a minute, and perhaps five minutes elapsed between groups. In other words all makes of .22 Long Rifle ammo shot with best accuracy when the bore was fouled and warmed by the firing of at least twenty previous shots.

Center fire rifles invariably showed the same tendency when loaded with lubricated lead bullets. The first shot from a clean, cold bore was almost invariably more or less wide from the subsequent shots, with either black or smokeless powder. With black powder the accumulated powder fouling in the bore interfered with the accuracy after five to twenty shots depending on how much moisture there was in the air to keep the fouling moist. This was more pronounced with small than with big bores. From 1896 to 1901 I did a lot of competitive shooting with the old .45-70 Springfield rifle, using the 500 grain lubricated lead bullet and 70 grains of FG black powder, the standard load in those days. In order to get the best accuracy the well informed shooters always had a cartridge case with a rubber tube on the end, and between shots they would put the case in the chamber and breath slowly through the bore to keep the fouling moist. And between ranges they would clean the bore. When using smokeless powder with lubricated lead bullets I never found that accumulated fouling interfered with the accuracy. Indeed, with the .22 Long Rifle cartridge it is the present custom among competitive shooters to never clean the bore, but only to fire three or four sighting shots before starting on a record group. It seems to be a proven fact that the fouling in the bore from firing lubricated lead bullets with smokeless powder and non-corrosive primers is itself a good rust preventive.

Jacketed Bullets and Smokeless Powder

Way back about 1901 Dr. W. G. Hudson called my attention to the fact that any trace of oil should be wiped from the bore of the Krag rifle before starting to shoot or the first shot was liable to strike high and rather wild, and that has been my invariable custom since, when first starting to shoot for the day, or when starting out for a day's hunt. With these rifles, from almost the very start, I have invariably recorded in my score and record groups the location of the first shot from a clean cold bore. These records, literally thousands of them over the years, and to date, show: with a good barrel that has not been unduly straightened in the process of manufacture, and with good bullets that: When the bullet is the same diameter as the groove diameter of the bore, or not more than .0003" smaller than the groove diameter, there is no tendency for the first shot from a clean cold bore to strike other than well in the group of the succeeding shots. That is it may be in the top, bottom, center, right or left of the group. But when the bullet exceeded the groove diameter of the bore by as much as .0003" or more there was a decided tendency for the first shot to strike at least slightly wild, almost always high. I had one .22 caliber 2R barrel which had a groove diameter of .223". When it was fired with .224" (the usual standard) bullets the first shot, from either a clean cold bore, or a fouled cold bore practically invariably struck just about an inch above the group of succeeding shots but for those succeeding shots was quite accurate. When used with .223" bullets there was no such tendency. I have seen this same tendency in many other rifles using over groove diameter bullets, some of them indeed that would deliver the first shot as much as five or six inches wild, but shoot **fairly** well after they were warmed up.

It has been my custom when testing a rifle for accuracy and reliability to always fire at least four 5-shot consecutive groups, that is one ammunition box full. I do not believe you can tell anything about a rifle or a load from one 5-shot group; luck enters into it too much. A rifle or a load that will shoot "into a minute" is one that will average that for at least four or five consecutive groups. I am speaking here of bench rest groups fired at a rate of not less than one shot about every half minute. Moreover, when firing such four or five 5-shot groups, almost never has the first group been the smallest group. Rifles almost always seem to shoot smallest groups after they have been fairly fouled and warmed up. Conversely, if a rifle is fired very rapidly and continuously so as to heat the barrel so you cannot handle it with your bare hand it begins to shoot rather wildly, and certainly you have taken some of the accuracy life out of your barrel by excessive erosion. Therefore I should say that Ernest Stuhlshooter was exactly right in saying that in competitive bench rest shooting one should fire two or three sighting and fouling shots before starting on his record target.



Col. Townsend Whelen observing and visiting at the 1961 Vermont State Smallbore Rifle Championship tournament near Woodstock, Vt.

I have owned some rifles in my time through which I have fired many thousands of shots. In late years rifles shooting the .22 Long Rifle Non-corrosive cartridge never seem to wear out. There are many records of such rifles having been fired two hundred thousand or more shots and remain as accurate as ever, although sometimes their headspace has to be tightened up. Rifles firing lead bullets with non-corrosive primers never seem to wear out, that is of course in the lower brackets of velocity. However, I know of no accuracy life tests of rifles shooting lubricated lead bullets with gas checks at 1800 to 2000 fps.

All the smokeless powder jacketed bullet rifles that I have fired extensively seem to have shot more accurately after they have been fired two or three hundred rounds at least than when new; that is after the bore has lost its new smoothness and polish and has taken on the polish caused by the bullets passing through it. At least this is the way I account for it. Then these barrels have continued to shoot with fine accuracy until considerable erosion at the bullet seat has occurred. Well fitted and made gilding jacketed bullets of fair length, that is not very light bullets, do not seem to cause much bore wear, despite old ideas to the contrary.

Small bore very high velocity rifles have a shorter accuracy life than larger bore rifles fired at slightly lower velocity. We seldom hear of any .22 caliber bench rest rifles that have retained their gilt edge accuracy for over about 2,000 rounds, although such barrels can then be cut off at the breech, rechambered so as to exclude the erroded portion of the bore, and then shoot as well as ever. I have one .243 cal.

Winchester Model 70 varmint rifle, (heavy stainless steel barrel) that I shot for slightly over 2,000 rounds before it ceased to average under minute of angle groups with the best handloads. Then the accuracy began to fall off gradually until after 3500 rounds four consecutive 5-shot groups would run from between 1½ to 2½ minutes, and I had the barrel replaced. This barrel was never overheated, and it was fired only with just a few what might be termed "max" loads for test purposes.

On the other hand at Frankford Arsenal, accuracy testing of .30-06 ammunition, firing from rifles held in a machine rest in the course of regular accuracy testing of the days product, it has been found that ammo loaded with the 173 grain boat tail bullet and 4895 powder to M. V. 2650 fps, can be shot for eight to ten thousand rounds from a good barrel, will continue to give slightly better accuracy as it is fired, and after that number or rounds will still continue to group in a minute of angle at 300 meters. (See the new N. R. A. Handloading Manual.)

The bullet is the most important component in attaining and retaining fine accuracy. We bench rest shooters have always gotten our best accuracy from skillfully made bullets from B & A dies of .22 to .243 caliber, loaded with any fairly decent powder charge. But I do not believe that small bore rifles are necessarily more accurate than big bores. For example, in the past two years I have been getting fantastic accuracy from .308 and .30-06 rifles using the 168 grain Sierra International bullet, and I understand they have been obtaining similar results at the AAMU.

Before closing I think I ought to speak about the bedding of rifles in their stocks. I first became more or less acquainted with this matter when I was ordered for duty at Springfield Armory in 1929. Until then I do not ever remember any mention of "bedding" in any rifle literature. When at Springfield I learned how important the bedding of the rifle in its stock was for fine and reliable accuracy. I wrote a letter to all the custom gunsmiths of my acquaintance on the subject. Ever since then custom made or custom refined rifles have as a rule given much better accuracy than factory rifles in factory stocks. Rifles are never built to uniform exterior dimensions, and when fired in machine made and machine inletted stocks they may or may not give their best and most reliable performance, despite everything else being correct. We bench rest shooters know how necessary it is that the rifle be well, perfectly, and tightly bedded in its stock for fine accuracy. For example, take the Winchester Model 70 rifle, noted for its exceptionally fine metal workmanship throughout. Almost always in a well bedded stock it gives a very fine performance. But often in its standard factory machine inletted stock its performance with any load is rather mediocre. Not invaraibly, but often.

There has been considerable discussion lately whether it is best to have the barrel bedded in its forearm with a constant light pressure of the tip of the forearm upward against the barrel, or to have the barrel free floating in its forearm. Certainly we bench rest shooters have attained fine accuracy either way. However, wood is always liable to warp, and the forearm of a stock is more liable to do so than elsewhere. With forearm tip pressure, if it warps accuracy is liable to suffer until it is corrected. With free floating it is not. It seems to me I lately saw one very prominent hunter rifleman make the remark that he had no use for a free floating barrel, but I also remember in his story of an Alaskan hunt that he had to give up using his favorite rifle and go to using his extra one because the stock of his favorite had warped from excessive damp weather. If it had been free floating this would have made no difference. Also the rifle with the free floating barrel seems to always shoot to the same center of impact no matter how it is rested and held, provided only that the naked barrel be not rested on a solid substance, and the recoil be taken up fairly uniformly on the shoulder. But a rifle with a tightly bedded barrel almost always shoots to a different center of impact if the forearm be rested on a substance of varying hardness or if it be shot prone with a tight gunsling.

Comparatively few of our custom gunsmiths have the skill and integrity to bed a rifle properly in its stock using the chisel. In the club in which I have been shooting continuously for the past four years almost all the members have come to having the actions and the first one or two inches of the barrel tightly bedded in glass or other similar plastic, and the remainder of the barrel free floating in its forearm. In no case has this method given anything but better results.

NEW NORMA .357 CARTRIDGE

By Kent Bellah

Norma Match Grade Ammunition is better known in other countries than in the U. S. But this honored name is rapidly gaining favor in this country. The famous Swedish firm's newest item is Norma .357 Magnum ammunition, Index No. 174. The cartridge is unique with a 158 grain half jacket flat lead nose bullet. I consider the bullet the finest ever loaded in a factory cartridge in this caliber.

When Jim Harvey created the famous Jacketed Jugulars, in 1956, I predicted that something similar to these "Most Deadly Bullets" would be supplied in premium grade factory loads before long. This was printed in my handloading columns in GUNS Magazine, SHOOTING TIMES, SOUTHWESTERN LAW, THE U. S. HANDGUNNER, THE GUN DIGEST, this journal and others. It was also in my revision of THE BOOK OF PISTOLS AND REVOLVERS, that the Stackpole Co. recently brought out. Norma made the prediction come true, and they have another "first."

Norma's version is not an exact duplicate of the Jugulars, although they kept the soft lead core and general shape. The long, copper or gilding metal jacket covers the entire bearing surface, and is crimped tightly over the front shoulder. This eliminates lead contacting the bore, or even the barrel throat. The case mouth is crimped to expose about 1/16" of the long jacket.

Samples of the unplated brass cases weighed 2.6 grains more than Super-X. Evidently the extra weight is in the head and rim, as length and capacity are about the same. The smooth walls eliminate excessive stretching, and weakness. I've found some lots of cannelured cases in this caliber that pulled apart at the first firing. It isn't common, but can cause plenty of trouble. There is no need to weaken hot-shot shells with a cannelure. I believe it was used to identify smokeless powder loads in black powder daze. The idea was OK B. M. (Before Magnums). When Winchester made the original .357 Magnum cartridge for Smith & Wesson's new creation, handgun pressure jumped to rifle range, near 45,000 psi. This should rule out a cannelure.

After WRA discontinued the cartridge in the 1930's, they used the Super-X label on reduced loads. For many years the Remington stuff was hardly better than a hot .38 load. It's been greatly improved in recent years with a full length case and their Small Rifle primers. The old WRA stuff gave less muzzle flash than either current U. S. make, that has a brighter, whiter ball of fire. Norma's muzzle flash is small and narrow. Both U. S. makes give some bore leading, in some guns. Norma's bullet eliminates leading, of course.

Current Super-X stuff has a fairly soft, sensitive primer. It fires perfectly in over tuned guns with light springs. Remington's primer is harder, and may misfire occasionally in such guns, but fires perfectly in guns with a near normal firing pin blow. Norma's primer is soft and sensitive, perhaps softer than the Super-X. Both makes may crater in the firing pin hole of badly worn guns, or those with large firing pin holes. One Norma round was left in the cylinder while firing 10 rounds. No bullet creep was detected. No current ammo gives much bullet creep in this caliber.

Norma's load is not a watered down charge. I have not had time to check the velocity with a chronograph, but in a 4" barrel it equals the bullet expansion of the most potent factory fodder ever made, the original WRA round that used Large Pistol primers. In a 6" and longer tube the old WRA stuff has a bit of advantage. Some of this old ammo is in circulation. I do not recommend firing it. Perhaps the load was discontinued because it was a bit hot. It didn't give any trouble in strong guns when it was fresh. It may do so today. My small supply, kept for reference, requires that cases be driven out of the chamber. It may cause chamber expansion and other troubles.

Robert B. Bothwell, of Beaumont, Texas, very kindly shipped me more than a box of another lot of WRA's discontinued ammo that gives the same trouble. It also gives excessive leading. I consider it "marginally safe," a nice way to say I think it's unsafe. I wouldn't risk it in a fine gun, and it could be dangerous in a clunker, or an idiot piece, such as a .38 converted to .357. Firing a few excessive loads can shake-up a fine piece beyond repair.

Two Colt .357 Pythons, a 4" and 6", were used to testfire Norma's new load. Groups at 50 yards were good. Bullets recovered from moist sand expanded to .60 to .63 caliber. The non-ferrous jackets ruptured at each rifling mark, curling back in a classic mushroom as the base tried to drive through the nose. These would be deadly on deer-size game with a decent hit. Recoil is moderate.

From a Winchester M92 rifle conversion with a 20" barrel bullets expanded to about one inch. Jackets ruptured at each rifling mark completely to the base, turning wrong side out. The huge mushroomed slugs held together, with the 6-blade, wrong side out jackets fused to the cores. A hard alloy bullet would have expanded less, or shattered, to deliver considerably less shock.

To check Norma hulls, I loaded top charges of 2400 (that have been listed in this journal) with 127 and 156 grain Jugulars. Like all Norma flash holes, these are drilled neatly, not punched. Vents are slightly smaller than U. S. shells. Performance was excellent with CCI No. 550 Magnum and Western 1½ primers. I prefer CCI Magnums for cleaner burning of all 2400 charges. Both Pythons and a S & W Combat Magnum digested the loads without complaint. Norma's case is a dandy, and I think their bullet is definitely superior to any factory load.

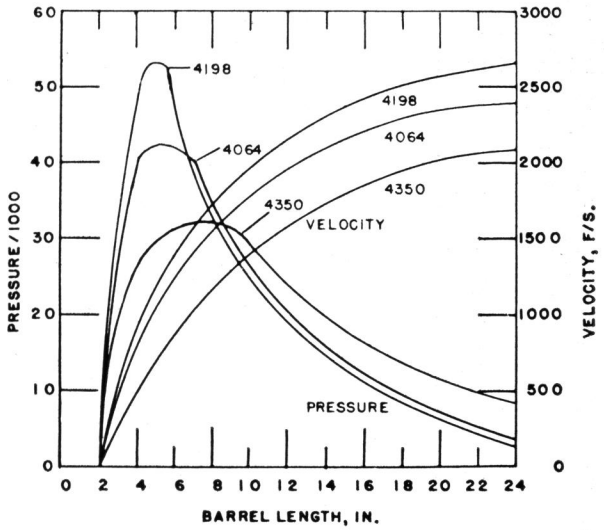


FIG. 1

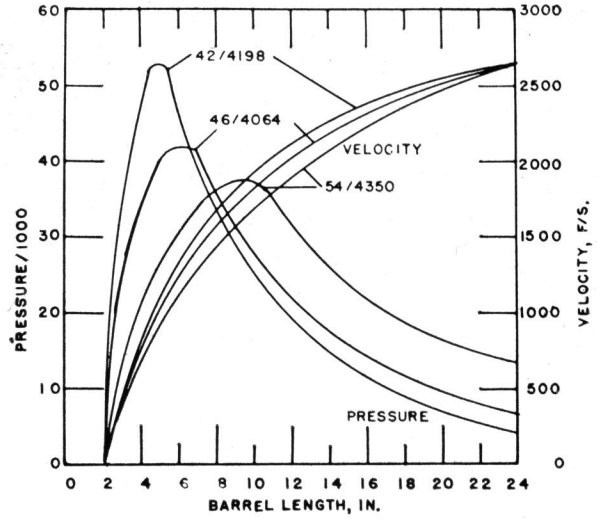


FIG. 2

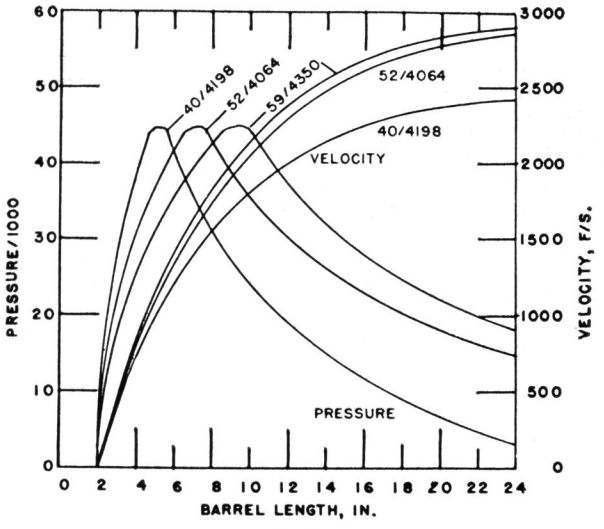


FIG. 3

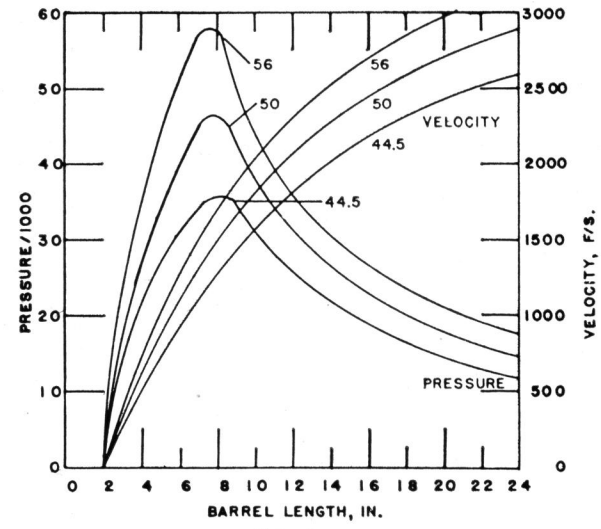


FIG. 4

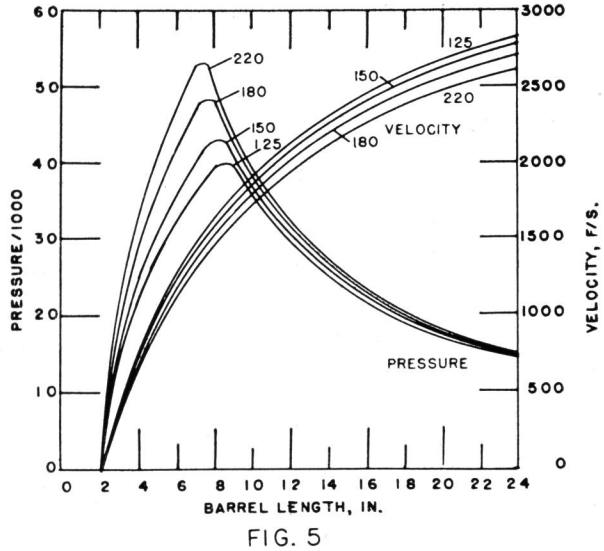


FIG. 5

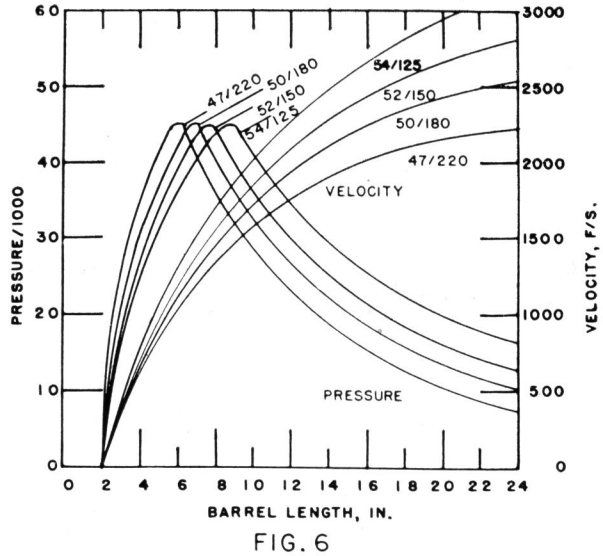


FIG. 6

"BURNING RATE" OF NITROCELLULOSE POWDER

The semantics of "burning rate" will not be discussed because it has been so badly abused by those who have very limited knowledge of interior ballistics. Rather, we will let the attached illustrations demonstrate variations in burning. Dr. Carl Cranz worked out his "inductive method" for determining interior ballistic curves by starting only with a measured muzzle velocity and maximum pressure. Here, we have used his method applied to widely scattered pressure-velocity figures published in the United States.

The .30-06 cartridge is used for comparing three of DuPont's I. M. R. Powders. Each are tubes of nitrocellulose with some minor coating differences, which are .084" long with an inside diameter of about .007". The tubing wall thickness, known as the web, is the most significant variable. The web of 4198 is .0100", of 4064 is .0128" and of 4350 is .0160".

In the illustrations, near the top of the pressure curves, the arrow lines indicate cessation of burning. The powder was burning up to this point in characteristic fashion but afterwards the curve falls down towards the muzzle.

FIGURE CAPTIONS:

Fig. 1. .30-06 with 150 grain bullets and 42 grains of three powders.

Fig. 2. .30-06 with 150 grain bullets and different weights of three powders.

Fig. 3. 150 grain bullets with three powders, weights of which are adjusted to achieve same maximum pressure.

Fig. 4. .30-06 with 150 grain bullets and three weights of 4064 powder only.

Fig. 5. .30-06 with 50 grains of 4064 and four different weights of bullets as indicated.

Fig. 6. .30-06 with 4064 powder only, four different bullet weights with weight of powder adjusted to give equal maximum pressures.

NOTES:

1) Higher maximum pressures occur earlier in the bullet travel.

2) Change of velocity with barrel length is not simple; it depends upon kind and amount of powder as well as bullet weight.

3) Muzzle pressure for satisfactory velocity can be suitably adjusted to a minimum value in order to promote accuracy.

Homer S. Powley
1961

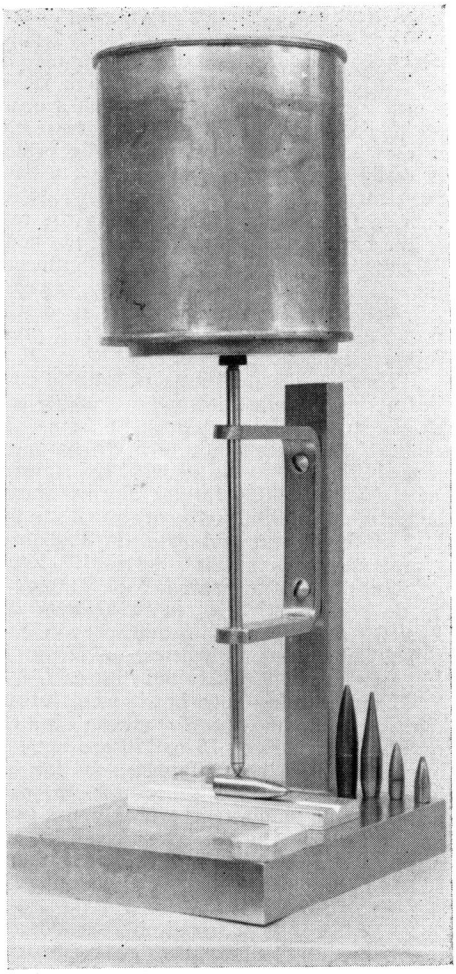
COMMENT ON HOLOW POINT AND OTHER BULLETS

By Homer S. Powley

(Editor's foreword: The following comments and information came to me in three letters this past summer. It seems of general interest and worth passing along. Homer Powley is a serious, careful experimenter and investigator who isn't satisfied until he **knows** what is what, ballistically.)

FIRST LETTER: You recently raised the question concerning experience with hollow-point bullets. I have no experience making jacketed bullets but all of the information I have received and the observations I have made have indicated that hollow-point bullets are probably a little easier to make dynamically symmetrical for good accuracy. I have fired hollow-point bullets in several different calibers and found many of them to be quite accurate.

Some of the varmint shooting I have done, particularly at long ranges, indicates hollow-point bullets to be quite undesirable because they do not break up well. In varmint shooting, as you know, we wish to make humane kills and use bullets which will be as destructive as possible or break up readily to avoid ricochets.



Brinell bullet tester

Hollow-point bullets are usually quite blunt therefore losing velocity too readily. The best bullets I have used have been long-pointed Spitzers with a lot of exposed lead. Ray Speer told me that the rapidity of breakup on impact depended upon the amount of exposed lead. It has been my experience that bullets with exposed lead break up much more rapidly than do hollow-points.

I have listened to and read a lot about other factors governing bullet break-up. These include thickness of jacket, hardness of the jacket, and hardness of lead core. I decided to compare some bullets for these factors since shooters like to talk about these things without being specific. The photograph shows a Brinell testing gadget I put together. In the photograph I am using a 1 millimeter diameter bearing ball. This is the same size as used in many ballpoint pens. The total weight on the ball is 5 kilograms. The ball is held in place by magnetizing the end of the supporting spindle. The bullet is resting in a small V-way. The full weight is permitted to remain for 30 seconds and then the average of 2 diameters of impressions is made with a low power microscope containing a calibrated eyepiece micrometer.

The above set up is satisfactory for obtaining Brinell hardness of jackets. For the cores, I use a 1/16 inch diameter bearing ball with a total load of 5 lbs. Brinell hardness is always expressed in kilograms per square millimeter area of indentation so you can use different combinations of loads and ball diameters. The important thing is to create an impression which is not a substantial fraction of the thickness of the specimen being tested.

In order to check the thickness of jacket in the head of a bullet it is merely necessary to sectionalize the bullet and measure the jacket thickness with the eyepiece micrometer of the same low power microscope.

I made a spot check among a total of 15 bullets of different calibers with which I had had varmint shooting experience. I found that the Brinell hardness of the cores ranged between 3.4 and 6.1. The Brinell hardness of the jackets ranged between 55 and 89. The jacket thickness ranged between 13 thousandths of an inch and 40 thousandths. I measured the percentage of length of head on these bullets due to exposed lead. This ranged between 16% and 40%.

My preliminary conclusion was that hardness of core, hardness of jacket and thickness of jacket had very little to do with the observed ease of break-up on varmints upon impact. The other conclusions supported Ray Speer's remarks and the indication is that at least ⅓ of the head on a bullet should be exposed lead in order to achieve what I consider satisfactory destruction on varmints.

Woodchucks as you know are very resistant for making instant kills. However, some woodchucks not fully grown are very easily torn apart even with hollow-point bullets.

At present I do not know of any .25 or 27 caliber bullets which have long Spitzer points and ⅓ or more exposed lead. Perhaps you know of some and would be good enough to let me know.

(Editor's interruption: At the same time I replied to Homer Powley's above letter I sent him samples of the various home-swaged bullets I had made for him to test for hardness, etc.)

SECOND LETTER: I will be very glad to obtain data and send it to you when your bullets arrive.

Meanwhile, I don't believe I made it clear that when I referred to hollow-point bullets I was referring not only to the old type with a small hole as if drilled but also the newer "soft-swaged" with a practically empty nose. Actually my thinking is the same as yours on the old type. Every boy knows that a hollow-point .22 lead bullet will mushroom and do more damage than the solid lead. My observations on the corresponding hollow-point jacketed bullets indicate that the hole in the point does very little. In fact, I have always felt that such bullets merely made good sales points to men with juvenile ideas.

I have observed enough of the soft swaged variety to consider them unsatisfactory for woodchucks, crows and hawks. Specifically I refer to the Sierra 110 grain .30 cal., Sierra 90 grain .27 cal., Speer 130 grain .30 cal. and Jordan 100 grain in .27 cal. Beyond 150 yards they are not humane even in Magnum cartridge cases. Closer than that their effects will undoubtedly startle inexperienced shooters.

I have had very limited experience in observing bullet effects on western prairie dogs and ground squirrels. It is possible that the boys out west think of this as varmint shooting. However, our requirements in this area are quite different, especially for great granddaddy woodchucks. I know you have had experience with them.

Among the bullets mentioned above I have found the Sierra and Jordan to be very accurate and this agrees with your positive knowledge of some similar bullets you mention. However, we are talking about effects on game, small and large. I have killed only a very few black bear and deer where I had an opportunity to observe the bullet and its effects. I, therefore,

(Continued on Page Eight)

Comment on Hollow Point Bullets

(Continued from Page Seven)

don't feel qualified to discuss the subject of killing power on large animals. I have observed, however, that the hollow-point bullets of the old type only do not break up or mushroom nearly as rapidly as bullets with exposed lead noses. There are some good reasons to believe that this lack of break-up may be beneficial under certain circumstances but again, there are many men who have had much more experience at this than I have had.

You mention velocities required to make bullets expand. The following tabulation has been made by me to average a very great deal of published information concerning bullet behavior on impact:

MINIMUM VELOCITIES

Behavior	H. P. Lead	Lead	Jacketed exp. lead	Full Jacket
		Water		
Deform	900	1300	1100	
Mushroom	1000	1400	1700	
Shatter	1400	1600	2500	2600
		Flesh		
Deform	900	1300	1200	
Mushroom	1000	1400	1740	
Shatter	1400	1800	2200	2300
		Bone		
Deform		700	1000	1850
Mushroom			1500	
Shatter			2000	2500

You will notice that the tabulation shows the minimum velocities required for the described effects. There is none of this which is in disagreement with my own limited experience.

THIRD LETTER: We have just had a break in some stinking hot weather so I was able to spend a few hours with your bullets, with the following results (see tabulation):

Caliber	Weight	Jacket length	Jacket make	Jacket Thick. Body	Jacket Thick. Head	Brinell Core	Brinell Jacket
.22	52 gr.	.735	Kampen	.021	.021	4.0	91
.22	55 gr.	.705	Sierra	.019	.020	4.0	104
.25	83 gr.	.860	Sierra	.023	.023	4.0	90
.30	145 gr.	1.085	Sierra	.028	.029	4.0	91
.30	169 gr.	1.200	RCBS	.020	.025	4.0	104*

*Brinell just back of point is 150. Probably is the result of work hardening. Other bullets not checked.

The lead you are using is really soft, as you state. It is my guess that there are no important differences among the above bullets as far as break-up is concerned.

Not so long ago I sent you some graphs and information showing, among other things, that the bullet weight does have a significant effect in determining the rate of burning of powders. That, of course, will be news to most people. The "shot-start pressure" is also very significant in determining the rate of ignition of powder and therefore its rate of burning. It should be obvious that a very tough jacket which is not engraved readily would run up initial pressures and therefore increase the rate of burning compared to a bullet which is easily engraved. Once the bullets have been engraved there is no significant difference in frictional resistance during the rest of the bore travel. The length of the body of a bullet would be expected to influence the "shot-start pressure" but again is probably not significant during the rest of the travel insofar as rate of burning and pressure are concerned.

These last named interior ballistic considerations are what led me to making my Brinell tester gizmo. Amongst some .30 caliber bullets tested the Brinell hardness ranged from 78 for a model 1906 stannic-stained bullet to 170 for the Norma Match bullet with cupro-nickel coating. Both the M-2 gilding jacket and the M-2 gilding-coated steel jacket bullets tested 104 Brinell. Incidentally a French Balle D picked up on the battlefield in 1919 tests 104 Brinell. A 1906 150 grain cupro-nickel jacket bullet tests 91 whereas a .220 grain Krag cupro-nickel jacket bullet tests 124.

I am guessing now, but it seems to me that bullet break-up with gilding jackets ranging from Brinell 75 to 150 are not going to show much difference so far as break-up on impact is concerned; the velocity, as you suggest, is probably the governing factor. On the other hand, if exposed lead with about 1/20th such hardness is the first impact then there undoubtedly is a significant difference.

The increase in Brinell on your .30 caliber bullet is not unexpected but again it is my guess that all such bullets have been work hardened and probably with no significant effect on break-up qualities.

HOW THEY SAVED THE RANGE

by William E. Peterson

It happens like this so often—an earnest group of shooters gets together, finds a nice isolated spot somewhere in the wilds, good backstop, firing line facing north, everything right. Then they work like beavers putting up target frames, firing line benches, storage shack, etc., and finally settle down to enjoy life—and shooting. This works swell for some years.

Then a rising tide of home developments begins to creep nearer and nearer the range. More and more new homes go up. After a while murmurs are heard about the noise of firing, ultimately growing into serious complaints.

This situation usually means you ultimately lose the range, and it certainly looked that way to the Westchester County (N. Y.) Police Revolver & Rifle League, Inc., about their beautiful range at Ardsley, N. Y.—a suburb of New York City. The story was told by the Public Relations Officer of the club, the genial and courteous Police Lieutenant Frank Waterbury, Town of Mamaroneck (whose straightforward sincerity could probably persuade Kruschev into agreement on West Berlin). "Of course," he said, "we could have fought the thing—and we could have lost it. You know a firing range doesn't have much standing when a group of homeowners gets on the warpath. But we thought if we were fair about it maybe they would be, too. After all, we do make quite a racket sometimes. So we offered to limit the hours of firing, and rule out the heavy stuff like .45 service loads. After a bit of discussion this was accepted. Now we quit shooting at 2 P. M. instead of around 6 on Sundays, and 4 instead of 6 on Saturdays, and we use mid-range loads only. Also, we are permitted to hold our two-day pistol tournament every year without limitation. So we still get all the shooting we want, and everybody's satisfied." Just another case proving that if you can see the other fellow's problem as well as your own, it helps him to see yours.

This Westchester County League is quite an institution. Originally comprised of police only, its membership of over 1100 now includes a large number of local civilian shooters. It receives the enthusiastic support of the various Police Chiefs of the area, such as Chiefs Doyle of Dobbs Ferry, Bell of Ossining, Sheridan of Greenburgh, Yerick of Town of Mamaroneck, Burrows of North Pelham, Hogan of North Tarrytown, as well as the willing cooperation of the civilian complement. The main responsibility is assumed by Lieutenant DeMichele, Dobbs Ferry Police, who is President of the League, and Chief Range Officer for the tournament.

The 1961 Pistol Tournament, held September 9th and 10th, was carried through with the usual slick, unhurried celerity and scheduled timing. For instance, the writer was supposed to fire a .22 match starting at 12 o'clock. As the command "Ready on the firing line" rang out, the local town siren signalled noon. The competitors went through in relays of twenty-four, at the rate of three relays per hour, or one 30-shot relay—Slow, Time, and Rapid—every twenty minutes. All without apparent hurry or hustle. No "alibis," no delays, no interrupted firing commands. To a veteran of many registered pistol tournaments, the fact that 375 registered shooters, 109 entered teams, and 1116 individual match entries, were all handled in the space of two days on a 24-man firing line, is nothing short of amazing.

There are of course reasons for this. In this year's tournament, only advance entries were accepted. In consequence all arrangements, scheduling, target assignments, etc., were already established, and the competitor received in the mail a single card giving complete information as to the relays, targets, and closely approximate time he would shoot in each match. There was no holdup of the firing line while a missing competitor was being hunted down. Everybody knew when they were supposed to shoot, and they were right on the job when the time came. All the data was included on a single simple card, giving complete information as to the relays, targets, and times he would shoot in each match. To this shooter, the system compares favorably with that in most standardized tournaments, with their usual handful of little tickets telling relay and target, but offering no information as to the time of shooting, which apparently could not be estimated with any certainty.

There is just one other feature of this Westchester County League tournament which deserves mention. The grand total of Two Dollars was all any competitor had to spend to go into as many matches as he was qualified to enter. I can only state the facts, but make no attempt to explain it. No wonder they are obliged to limit competition to the immediate locality, although they do take in shooters from parts of southwestern Connecticut, which abuts on that part of the New York line.

The course fired was the standard 30-shot police course, with a 300 possible. Possible 300 scores were fired by; Paul Paquet of the winning New York State Police team in the Police Team .38 cal. match; D. Trotta in the Police Individual .22 cal. match, and by J. Rosenthal and Joseph Campanaro in the Aux. Police and Civilian individual .22 cal. match. The .45 cal. match was won by L. Thomas with a 299.

TOURNAMENT CIRCUIT

DAMARISCOTTA, MAINE

At the Lincoln County Rifle Club's twenty-third Annual Re-entry Shoot at Damariscotta, Maine on September 3rd and 4th, John Crowley from New Haven, Conn,. won top prize in the .22 cal. rimfire match at 100 yards with a possible 500-50x for his five best targets. Donald Winne, Albany, New York and W. J. Ayles, Greenville, Rhode Island were second and third, each with 500-49x for their best five targets. Edward Cushing from Claremont, New Hampshire was fourth with 500-48x, while Carl Boyington, Bangor, Maine and Harry Naylor, Essex Junction, Vermont, were fifth and sixth, each with 500-47x. Twenty-three of the 38 contestants in this match had their five best targets score 500-31x or better.

John Crowley also won the 200 yard any rifle prone match, five shots on each 100 yard decimal smallbore target, with a possible 250-12x for his five best targets. Everett Marden, Keene, New Hampshire, was second with 248-12x; W. Cullen, North Reading. Mass., third with 246-10x; Harry Naylor, fourth with 242-7x; and George Lepisto, Troy, New Hampshire, fifth with 241-10x.

Wayne Higgins, No. Scituate, Mass., made a decisive win of the 100 yard offhand match with his 493-20x for his five best targets. Philip McAloney, Woolrich, Maine, was second with 488-22x; Harry Naylor third with 477-11x, Frank Keith, Nobleboro, Maine, fourth with 475-14x; and Elmer Fox, Bath, Maine, fifth with 469-11.

CONNECTICUT MATCHES BIG BORE LEAGUE MATCH:

Rippowam remains unbeaten in the Big Bore League, scorig 622-42V in the September 10th match to beat second ranking Middlefield's 613-35V. Fourth ranking Roslyn from Long Island were third in this match with 611-51V while third ranking Springfield, Mass., dropped to seventh place in this September match.

John Ventres and Pete Tierney of Rippowam, Sam Burkhalter of Cos Cob, Don Hillery of Springfield and Don Nunns of Richmond Hill, N. Y. all fired possible 125 scores in this September match.

STATE SMALLBORE RIFLE CHAMPIONSHIP: Laurence F. Moore, Aberdeen, Md., won the 24th annual Connecticut State Smallbore Rifle Championship on September 17th by a decisive margin. He won the 50 meter any sight match with a 399-32x score, the 100 yard any sight with 397-24x, the metallic sight Dewar Course with 398-25x and was Creedmored to third on his 396-22x score to total a grand aggregate 1590-103x.

Grand aggregate runner-up was Walt Tomsen, Flushing, N. Y. with 1584-90x; Kermit Montross, Hartford, was third with 1581-88x; Sam Burkhalter had 1580-95x, Geo. Snellgrove, Jr. 1580-93x and Harry Stone 1580-72x. Lloyd Norton, Bridgeport, won the any sight Dewar with a 398-29x and was seventh in the grand with 1578-89x.

The fact that not a single possible 400 score was fired during the tournament would indicate that shooting conditions were very difficult and that the Blue Trail Range was living up to its reputation for being a sporty range to compete on.

INDIVIDUAL HIGH POWER CHAMPIONSHIP: Harold Slocum, Oakville, Conn., shooting the M-1 service rifle, won the Connecticut High Power Championship with a grand aggregate score of 248-18V at the tournament on Blue Trail Range, October 1st. Sam Burkhalter, Stamford, Conn., was runner-up and high in the match rifle division with 247-20. A total of 99 competed in the tournament, 64 with the M-1 rifle and 35 with match rifle. Weather conditions for shooting were ideal and high scores were the order of the day.

Two matches were fired, the slow fire match consisting of 10 shots each in the prone, kneeling and standing positions, the rapid fire match of 10 shots each prone and sitting, all at 200 yards.

Sam Burkhalter's 148-13V slow fire score was high over-all and with match rifle. With M-1 rifle, Slocum was high with 148-11V and Maurice Bergevin from Bedford, Mass., was second with 148-9V.

The two top rapid fire scores were by Slocum (1st) and Bill Dickerson from Granville, Mass., both shooting the M-1 rifle and both scoring 100-7V. R. B. Carroll of Greenwich, Conn., shooting M-1 rifle, was third over-all with a 99-8V. Then came match rifle shooters Burkhalter with 99-7V and Harold C. LeRoy from Albany, N. Y., with a 99-5V.

Third and fourth overall in the grand aggregate were Dan Kough, Stamford, Conn., 243-17V and R. B. Carroll, 243-16V, both shooting M-1 rifle. Fifth was match rifle shooter Harold LeRoy with 242-14V. High V-count shooter was Martha Ventres from Stamford, Conn. with 239-22V's for third high with match rifle.

NEW JERSEY LEAGUE

At the end of the Union County Rifle League schedule for outdoor smallbore rifle the Perth Amboy and Madison Rifle Club teams were tied with 11 wins and 1 loss each. In the shoot-off match to decide the league championship the Perth Amboy team won by the narrow margin of the 1498-116x to 1498-105x.

Rans Triggs had high season average of 99.9. Fred Triggs, Jr. had 99.8, C. Walter, C. W. Tilley, F. Triggs III and R. S. Hancock, all of the Madison Club, had averages of 99.7.

The Madison team fired four perfect 1500 point team scores in the second half (any sights half) of the league schedule.

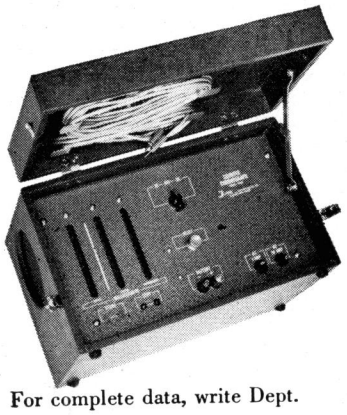
WESTERN OHIO RIFLE LEAGUE

The IHC team from Springfield won the any sights division of the Western Ohio Rifle League summer smallbore program and were runners-up in the iron sight division. North Dayton won the iron sight division. Valley City were runners-up in the any sight division.

R. Koons, Valley City, had high aggregate of 1592-103X in the any sight division, J. Baker, IHC, second with 1589-100 and

(Continued on Page 19)

T333 ELECTRONIC COUNTER CHRONOGRAPH



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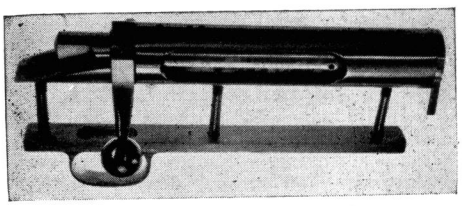

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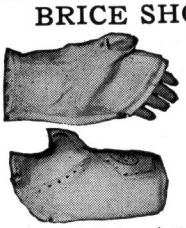

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Individual annual dues $5.00 (includes magazine subscription for membership term). Associate member (wife or husband, son or daughter under 18 years of age, of member in good standing—no magazine) $2.50. Life membership, $75.00. Annual club affiliation fee $10.00.

PRESIDENT'S CORNER

Our National Match is over and I believe that every one who attended had a pleasant time. I wish to congratulate our new champion, Mr. Cline Deere, who is one of bench-rest's faithful OLD TIMERS who made a good many trips to the firing line before he won the championship. I also wish to congratulate the new 100 yard and 200 yard champions and the winners of the "Top Twenty" awards.

The Johnstown boys did everything possible to make the shoot and our visit a most enjoyable one.

The N. B. R. S. A. Directors' annual meetings were held and I wish to thank each of them for their time and effort that was put into these meetings. Every request that was made for rule changes was discussed and this report will contain action taken by the directors. Among the things that this board agreed on was; if a rule is to be changed it should be for the benefit of the majority and the strengthening of the N. B. R. S. A. The sudden changing of rules without a full scale study of the situation often results in confusion, hardship and additional troubles. Many things that were discussed will rate further study and may be acted upon at a later date.

The first action was to reduce the Regions' share of your membership dues from one dollar to fifty cents a year. This was necessary because Precision Shooting increased our cost of the magazine to the N. B. R. S. A. This increase amounts to 40¢ per year. As you will see, this will give the National treasury 10¢ per year per member additional for operation. A financial report will be in the minutes of the meetings.

The rule covering penalty for crossfires was changed when a stationary backer is used. This was a temporary change for this year's National Match but worked out so well that the directors have made it a part of our rules where a stationary backer is used. The exact wording of this will be published later.

A National Course of fire was established for the Sporter Rifle class and records will be recognized. This course of fire is the same as for Varmint Rifle classes.

There was a long discussion regarding the Light Varmint and Sporter classes. The trend appears to be that the N. B. R. S. A. and the shooter would benefit if these two classes were merged into one class, probably called the Sporter class. That a change would not be made in haste and error, a committee of three was appointed and given one year to develop a solid proposal. This committee is Alfred Walter, Henry Barton and Larry Engelbrecht. The territory that these men represent does more Sporter shooting than any other section of our organization and they should be able to develop proposals for this class. These proposals will then be presented to the directors at their next annual meeting for action.

Registration fees for the combined National Championship Matches for Heavy Varmint, Light Varmint and Sporter classes were set as follows: Maximum charge for registration per day is $5.00 for the first rifle. If two or three classes are fired the same day, the fee for each additional rifle will be $2.50 per day.

The unrestricted rifle National Championship for 1962 will be fired at Tulsa, Oklahoma, and in 1963 it will be held in the Eastern Region.

The Varmint and Sporter National Championship matches for 1962 will be held in the Eastern Region. The clubs holding these matches will be decided at the Eastern Region Winter Meeting.

Your directors were unable to decide on a course of fire for the unrestricted rifle National Matches for 1962. There were four proposals made and after studying them, two were dropped. The two remaining proposals ended in a conscientious tie. I held the deciding vote and felt that the shooting members should help break this tie, and now I am asking for your help. The proposals are:

First; that we fire 200 shots for record, or in other words the same program that was fired this year at Johnstown, N. Y.

Second; that we fire 100 shots for record, or in other words that we return to the program that was used in 1960 and prior years.

Please send me a postal card or letter (addressed to Robert W. Hart, 322 Montgomery St., Nescopeck, Pa.) stating your preference—100 record shots, or 200 record shots. The conditions to be eligible to vote are that you have attended at least one N. B. R. S. A. registered match within the past two years. Sign your name and address. Dead line for close of voting will be January 1, 1962.

With the use of this information a course of fire for the 1962 National Match for unrestricted bench rest rifles will be announced.

Until November,

Bob Hart

NEW BENCH REST RECORDS

Ferris Pindell, Richmond, Indiana, has been awarded certificates for two new aggregate records made with unrestricted bench rest rifles.

An aggregate average of .328 minute-of-angle for five 10-shot groups at 200 yards.

A National Match Course aggregate average of .3106 minute-of-angle for five 10-shot groups at 100 yards and five 10-shot groups at 200 yards.

Warren Page, Chappaqua, N. Y., FIELD & STREAM Shooting Editor, has been awarded a certificate for a record five-shot group at 200 yards measuring .5726 inch, shot with Light Varmint class rifle.

This record group won the 200 yard Light Varmint Rifle warm-up match of the National Championships at Reed's Run Range, Augusta, Ohio, on July 23, 1961. Page shot the group with a .222 Rem. caliber in Apex barrel on Sako action; barrel 22 inches long and complete rifle with Lyman 15X scope weighed 9½ pounds. His load was 20.5 grs. 4198 powder with Speer 6S 52 gr. match bullet.

Omar A. Rinehart, Salem, Ohio, has been awarded a record group certificate for the 5-shot 200 yard group he fired with Heavy Varmint rifle in the Eastern Region Championships at Dryden, N. Y., on August 6, 1961. The official measurement of the group is .2623 inch.

Rinehart shot the group with a .219 Don caliber in Hart barrel on Remington action and used a Lyman 25X scope. His load was 26 grs. 3031 powder, his own home-made bullets and Federal primers.

Crawford H. Hollidge, Marstons Mills, Mass., has been awarded a record group certificate for the 5-shot 200 yard group he fired with Sporter class rifle in the Eastern Region Championships at Dryden, N. Y., on August 6, 1961. The official measurement of his group was .372 inch. Hollidge shot the group with a rifle chambered for a 6 m/m cartridge in a 24 inch Hart barrel with 14 inch twist on Remington 722 action and used a Unertl 8X scope. His load was 35 grs. of 4676 powder with his SPINTRU 7S bullets of 73 grs. weight.

L. S. Rucker, Akron, Ohio, has been awarded a record group certificate for the initial 5-shot group record at 100 yards with Sporter class rifle, which measured .331 inch. Rucker shot the group at Dryden, N. Y., on June 5, 1961 with a 6 m/m sporter.

The following week, at St. Louis, Missouri, **James Ernst,** Kirkwood, Mo., broke Rucker's record with a 5-shot group at 100 yards measuring .299 inch, with a .257 Roberts sporter. Ernst's group is the presently recognized record.

The .169 inch 10-shot group fired at 100 yards by Cline Deere, Washington Court House, Ohio, at the National Championship Matches in Johnstown, New York, September 1, 1961, is officially recognized by the NBRSA as a new record and Mr. Deere has been awarded a record certificate. The equipment used for the shooting is listed in the September magazine (page 11). Photo of the target is on the same page.

Bench Rest Match Reports

BENCH REST MATCH REPORTS
CUSTER, SOUTH DAKOTA

Twelve shooters competed in the matches at Custer, South Dakota, on August 12 and 13. The program included matches for Sporter, 13 lb. rifle and Unrestricted rifle classes, with the 100 yard stage for all being fired on Saturday and the 200 yard stage on Sunday. Otto Filbrandt, Richard Lange and Edwin Kinney from the Iowa Falls Club, Iowa, combined a few days touring the Black Hills with their shooting.

Harold Bing, Newcastle, Wyo., won the Sporter class grand aggregate with .758 MOA and the 100 yard aggregate with .647. Dr. Wm. Lee, Custer, won the 200 yard aggregate wtih .8455 and was second in the grand with .801. Jack Williams was third in the grand with .892.

With the 13 lb. rifle, Bruce Pheasant, Buffalo, Wyo., won seven of the ten fired matches, the 100 yard aggregate with .326, the 200 yard with .5095 and the grand with .417 MOA. Clair Hollingsworth, Rapid City, S. D., was second in the grand with .553 and Charlie Hankins, Buffalo, Wyo., third with .603.

Nine shot the unrestricted rifle class. Owen Hollingsworth won the 100 yard stage with a .409 aggregate to beat his father's .471 and Jack Williams .4838. Clair Hollingsworth won the 200 yard stage with a .4875 and the grand with .479. Walt Siewert, Custer, was second at 200 with .4945 and Bruce Pheasant third with .5435. Owen Hollingsworth was second in the grand with .507 and Pheasant third with .519.

YREKA, CALIFORNIA

At the Labor Day Shoot at Yreka, Calif., September 2 and 3, the 200 yard stage for all three classes, unrestricted, heavy and light varmint rifles, was fired on Saturday and the 100 yard stage on Sunday.

Roy Norman, Seattle, Wash. topped the field of 13 in the unrestricted class to win all the aggregates, the 200 yard with .8858 MOA, the 100 yard with .4550 and the grand with .6704. George Hendricks, Etna, Calif., was second all the way with .9049 at 200 yards, .4680 at 100 and .68645 in the grand. Allen Hobbs, El Cerrito, Calif., was third at 200 yards with .9651 and Allen Bench, Yakima, Wash., was third at 100 with .5018. Ed Frombach, Seattle, was fourth at both 200 and 100 yards to make third in the grand with .7456. Bench was fourth with .7558 and Hobbs fifth with .7588 MOA.

A field of 14 shot the heavy varmint class. Hendricks led at 200 yards with a .8864 aggregate, Hobbs had .9431 and Frombach 1.0044 MOA. At 100 yards, Frombach and Hobbs were one-two, each with a .5194 aggregate, and Ray Jones, Yreka, was third with 5592. In the grand aggregate it was Hobbs .7312, Frombach .7619 and Hendricks .7752.

The Washington shooters took the three top spots in the 200 yard aggregate for light varmint rifles; Frombach .9244, Norman .9525 and Bench .9811. Frombach also was tops in the 100 yard aggregate with .7658. Jack Bridwell, Gazelle, Calif., was second with .7922 and Ed Suchan, Oakland, Calif., third with 8584. In the grand it was Frombach .8651, Bridwell .9031 and Norman .9157.

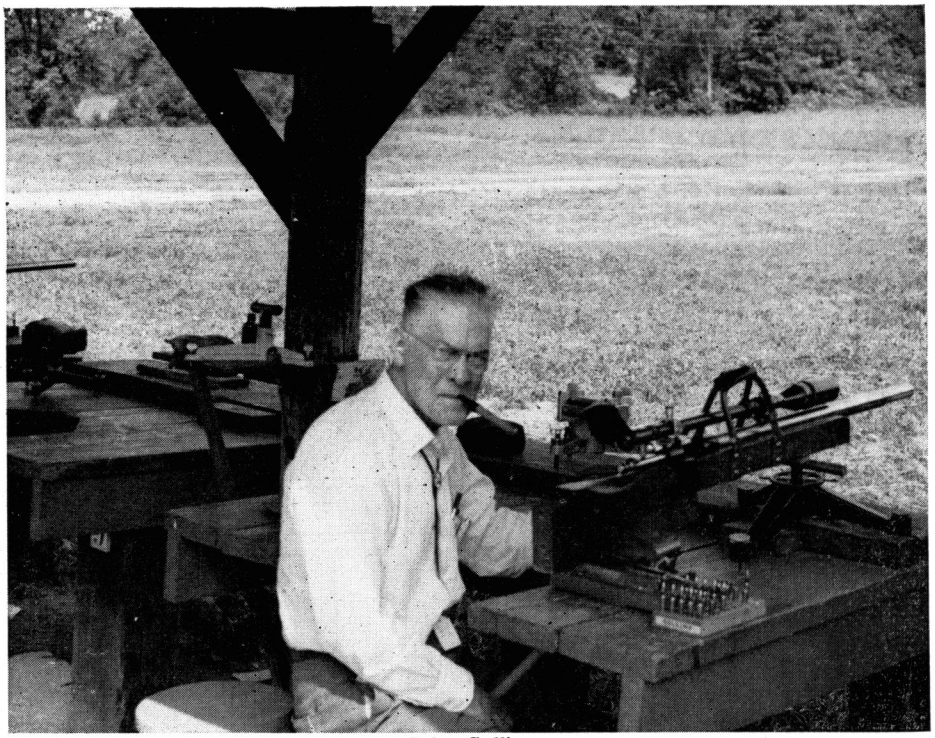
AUGUSTA, OHIO

Twenty-three shot five 5-shot and five 10-shot matches at 200 yards at Reed's Run Rifle Range on September 16th and the same course of fire at 100 yards on the 17th.

No aggregates were programed for the 5-shot matches but "Cowboy" Rucker had smallest aggregate average at 200 yards—.3343, C. Mauk second with .3445 and R. Stolle third with .385. Clarence Aumiller had smallest average at 100 yards—.2572, Rucker had .2892, Bernice McMullen .2942 and C. Mauk .2944.

For the NMC 10-shot match course, Bernice McMullen won the 200 yard aggregate with .508 MOA, Eldon Stolle had .5174, Aumiller .5188 and Ralph Stolle .5231. At 100 yards, Ernest Scafuri had smallest aggregate—.416, Omar Rinehart had .4228 and George McMullen .439.

Aumiller won the NMC aggregate with .4867, Paul Gottschall second with .4885 and Scafuri third with .4898.



John Collins

JOHN COLLINS

John Collins is one of the original group who founded the Eastern bench rest organization and is, we believe, the only one of that group who is still a regular participator in the bench rest competitions.

Though John's home is in Rochester, New York, he has long been a member of the Pine Tree Rifle Club in Johnstown, New York, and has done an immense amount of promotional and public relations work in connection with the Johnstown bench rest matches. He has recently been made a life member of the Pine Tree Rifle Club and his life membership card was presented to him by the club president at the banquet following the recent National Matches at Johnstown.

The photo was made by Gilbert Emerson at the 1961 Eastern Region Bench Rest Championships at Lewistown, Pennsylvania.

RICHMOND, CALIFORNIA

On Saturday night, September 16th, ten competed in matches at 200 yards on the Richmond, Calif. range.

Ray Jones from Yreka won the five match unrestricted rifle aggregate with a .4093 MOA average. (Mrs.) Virginia Jones was second with .5160 and Allen Hobbs was third with .5258.

Ed Suchan from Oakland won the heavy varmint class aggregate with .4433 MOA, Russell Lacque from Modesto second with .5844 and Ray Jones third with .6075.

Suchan also won the light varmint rifle aggregate with a .7314 MOA.

FASSETT, PENNSYLVANIA

Nineteen competed in the Heavy Varmint Rifle registered shoot on the South Creek Rod and Gun Club range at Fassett, Pa. on Sept. 24th.

Ray Wilson from Elmira, N. Y., shooting a 40X Remington rifle, shot a five 5-shot match aggregate at 100 yards of .2938 to beat the existing record for that course. Then Jerry Arnold, host club secretary, shooting a Shilen built rifle on Shilen action, lowered the mark still farther with his five 5-shot match 100 yard aggregate of .2886. This with Jerry's winning .4152 aggregate at 200 yards gave him the grand aggregate win with .3519 MOA, which is probably another new record.

Arnold's 100 yard groups were; .300", .312", .242", .232" and .357". Wilson's groups were; .185", .246", .343", .473" and .222".

Lynn Hunt was third in the 100 yard aggregate with .4236 and second in the grand with .4197. Wilson was third in the grand with ..4485. Paul Kempfer was second in the 200 yard aggregate with .4899 MOA and fourth in the grand with .5150. Chester Andrews was third at 200 with .4948 and fifth in the grand with .5174.

PLEASANT MILLS, INDIANA

At a bench rest match conducted by the St. Marys & Blue Creek Conservation Club, Inc. on September 24th at their Pleasant Mills, Indiana, range, James Shepler of Connersville shot smallest 100 yard 5-shot group of .158 inch. Ferris Pindell from Richmond shot smallest group at 200 yards—.427 inch—to win the special award of a ten dollar bill which had been nailed to a post.

W. T. Hopfengardner from Dayton, Ohio, won the 100 yard aggregate with a .2828 average. Floyd Gibson from Richmond, Ind. won the grand aggregate with a .3305.

(Continued on Page Twelve)

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Bench Rest Match Reports

(Continued from Page Eleven)

SANTEE, CALIFORNIA

The first monthly bench rest shoot sponsored by the Valley Gun Club was fired September 2nd with seven contestants. The course of fire consisted of four 5-shot groups at 100 yards and the contestant was permitted to indicate which one of his four groups he desired to have measured and recorded. Three shot the Light Varmint Rifle. Art Hampton shot a .855" group with a .22/250, U. L. Barnes a 1.250" group with a .222 Rem. and J. C. Roether a 1.375" group with a .270. W. W. Carson had a .8125" group shot with a .222 Rem. with the Heavy Varmint Rifle, T. L. Blanchard a .875" group shot with a .243, Don "6mm" Smith a .9375 shot with a .220 Swift and H. J. Turner a 1.1875 shot with a .218 Bee.

The monthly matches will be fired on the first Saturday morning of each month between 8 A. M. and 11 A. M. The rangemaster and caretaker is Harold J. Turner, 8334 Cuyamaca Street, Santee, California.

PERSONAL SCORING SYSTEM

Gilbert Emerson

I have my own system of scoring myself which may be of interest to the individual benchrest shooter. After determining the average MOA I then use the max. and min. groups to determine how wide my groups went from norm, by percentage.

I have been interested to note that while I may not be in the top twenty, I shoot more consistently than some of the experts! You might just say I shoot bad all the time, perhaps. But it is interesting to check out some of the better known shooters. As is well known, a very small group sometimes gets you in, although your other groups weren't much.

I don't suggest this as a scoring method—just a system for personal check-up. Plus or minus 10% is good shooting, I think.

SEATTLE, WASHINGTON

On August 12 and 13 the Seattle Precision Shooters Club held their final registered shoot of the season. The unlimited rifles were shot at both 100 and 200 yards on Saturday, and the heavy varmint rifles on Sunday. The conditions were fair for this section of the country and some very fine groups were recorded.

Eleven shooters took part in the matches on Saturday and from the beginning it appeared that L. E. Wilson of Cashmere would dominate the match. In the second match at 100 yards Wilson shot a .256" group which I believe is a new record for Seattle. Then at 200 yards he shot a .501 inch group which is a record for L. E. and for Seattle. Wilson's winning aggregate at 100 yards was .408 and for 200 it was .408 MOA, giving a grand aggregate of .418 MOA.

Ed Frombach was second in the 100 yard aggregate with .471 and Manley Oakley came in third with .486. Allen Bench from Yakima, a relatively newcomer in the game, placed second in the 200 yard aggregate with .586 and second in the grand with .560. Al Thomas was third at 200 with .623 and fourth in the grand with .571. Frombach was third in the grand with .563.

There were 14 shooters for the heavy varmint rifle matches on Sunday and the competition was lively and keen all the way through. Gunsmith Ed Hilton of Bellevue, Wash., was high man on the totem pole most of the way and at the finish. Ed Frombach of Seattle was first at 100 yards with a .428. He shot two very wonderful groups at 100 yards, a .192" in the first match and a .189" in the third match, but his 200 yard aggregate caused him to place third in the grand with .463. Hilton was second at 100 yards with .436, Bench had .444 and Wilson .458.

At 200 yards it was Hilton .421, Bench .427, Thomas .463 and Frombach .498. Hilton won the grand with a .428, followed by Bench with .436, Frombach .463 and Wilson .477 MOA.

Hilton shot a .222 Mag. made up by himself on a BSA action and Hart barrel. Frombach shot one of the new Rem. varmint 40X. Bench made his unlimited and varmint rifles, as of course did Wilson.

R. W. Lathrop

STATIONARY BACKERS IN BENCHREST

Stationary backer targets for the purpose of positively identifying cross-fire shots, and the point from which such shots were fired from, were used successfully at the 1961 National Championship Shoot at Johnstown, New York.

The stationary backers were in addition to the required moving backers. The moving backer, as most know, simply records the number of shots that were fired through a record target. Benchrest shooters do by mistake sometimes fire on a target other than their own, as do competitors in all other types of rifle shooting. The sole purpose of the stationary backer is to identify cross-fired shots as such and to also identify the firing point/bench from which they were fired.

The stationary backer is located directly behind the record target at such a pre-determined distance as to clearly show a displacement on the backer target of a shot or shots from firing points/benches on either side of that to which the target is assigned. When a fired record target is superposed on its backer target, shot holes from the firing point for which the target is assigned will match up, but a shot going through the record target at an angle from another point/bench will be displaced on the backer target (holes will not match up), which positively identifies it as a cross-fired shot. Since the distance between firing points/benches is uniform and the amount of displacement distance of a cross-fired shot on the backer is known for each angle of fire, the firing point/bench from which the shot came can also be identified.

This system of stationary backers has been standard in smallbore rifle tournament shooting for years. In smallbore, the competitor who crossfires on another's target is given the score value of his shot on the target minus one point penalty for the crossfire.

In benchrest, with no positive means to identify a crossfire, the rule has been that less than the required number of shots on a record target disqualified that target. More than the required number of shots on the record target did not disqualify the target but the competitor had to take the measurement of all the shots on the target—and that could HURT. The moving backer, of course, recorded the number of shots fired through the record targets. It was possible (and it undoubtedly did occur at times) that a competitor might realize that he had crossfired on another's target, but was not sportsman enough to accept the penalty of disqualification and went ahead to fire the required number of shots on his own record target. In such a case the competitor crossfired upon may have had his aggregate average hurt badly, while the dishonest, unsportsmanlike competitor could not be detected for disqualification of his aggregate. That situation has in the past been the source of more than a little dissatisfaction at important benchrest matches.

Since there was no rule for crossfires when stationary backers were in use, the NBRSA Directors met the evening before the National Matches started and adopted this rule: "If it is proven that a competitor had crossfired on another competitor's target, the crossfired shot would be transposed to the crossfirer's target, a measurement made and an additional ¼ inch added at 100 yards and an additional ½ inch added at 200 yards. No one would be disqualified. The rule to apply only when a stationary backer is used."

While the stationary backer does solve the crossfire problem and is fair to the competitor, it does increase the cost of range equipment and does somewhat increase the work of match operation. Its general adoption for registered tournaments may, with some reason, be resisted by small and not too affluent clubs conducting the smaller matches.

A moving backer system which also identifies crossfires quite reliably has been worked out and is in successful use by some of the Western clubs (see November 1960 issue of Precision Shooting). This system is probably more practical for the smaller ranges. Quite probably this system, the stationary backer system, or some other practical system that may be worked out, will eliminate the crossfire bugaboo in bench rest tournament shooting within the foreseeable future.

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Dear Phil:

By the time this is printed, the Eastern benchrest season will be pretty well over. On the whole, I would say it was a very pleasant one. We had a lot of shoots in widely scattered locations and at most of those I attended, conditions were pretty comfortable. However, the end of the active shooting season does not slow down the gun enthusiast very much because most of us are probably thinking about what we are going to do better next year and what it will take to do it. Each year, what it will take to do it becomes more and more a problem. Some few years ago, we could all see many changes to be made in our equipment which would give us a few added points but now things are so finely tuned down that although there are changes to be made in various items, the improvements which can be expected will give us but a fraction better groups than those we have been getting. As a matter of fact, the refinements are so minute that it takes a lot of shooting to assure one that the changes have been an improvement.

I was very pleased with the September issue of Precision Shooting. I don't think the cover would take any prize from the photographic angle but it did tell a little story that is so important to us all. Benchrest shooting is not dead, and little ranges such as that shown are getting frequent use by the shooting enthusiasts, many of whom will sooner or later take one of the most interesting forward steps of their shooting careers as they attend and enter the real benchrest competition. A fellow sent me five targets the other day of groups which he had been shooting at home, and I cannot help but think of how much pleasure he would have had, had he entered the competition somewhere throughout the season. I am sure he would be shooting good enough to win frequent prizes at most of the matches which I have attended and if he didn't run into some snag because of lack of experience, he would be ranking very high in the aggregate list.

The advent of the mechanical rest which so nearly returns the rifle to zero that a shooter with one of these contraptions merely watches the wind flags instead of looking through his scope as he pulls the trigger has made a lot of shooters feel that the odds are so heavily against them that they choose to shoot for record only. They recognize that the game is made up of two different groups, both of whom love the shooting game sufficiently to attend the matches, and are satisfied to place somewhere in the upper brackets. At the larger shoots, many fellows who have not shot much before are surprised to see some of the gadgets. Some of them will dislike the mechanical devices which have so changed the aspect of the benchrest shooting game and will not attend more matches, just as many who previously shot with us do not any longer attend because they don't enjoy that kind of shooting. There will be others with the ability, means and desire who will copy such gadgets or develop original ideas to accomplish this mission. I was dismayed to hear, after the Johnstown match, that some of my shooting friends who had heretofore stuck closely to sandbag shooting are contemplating having gadgets made for 1962. It is probably not news to them and many others that I won't be with them. I don't mean that I won't shoot among them, as I certainly expect to because I enjoy the pleasant association built up over the years. They say themselves that they don't prefer that kind of shooting and I am wondering just how far they will go when they are faced with building a gun that weighs nearly 50 pounds which rests on a precisely ground and hardened assembly that in many instances cannot be duplicated at a cost of $500 for the rest equipment alone. There will be some who have the knowledge and facilities to make such gadgets. To them admittedly the design, development and fabrication thrill will pay a certain type of dividend when one can win with it against like gadget equipped shooters and the majority of shooters who do not have a gadget of equal merit or the ones who shoot off sandbags. With the trend that seemed to be developing at Johnstown, we would have to coin a new nickname for our game because several of the shooters were not even sitting down to their guns.

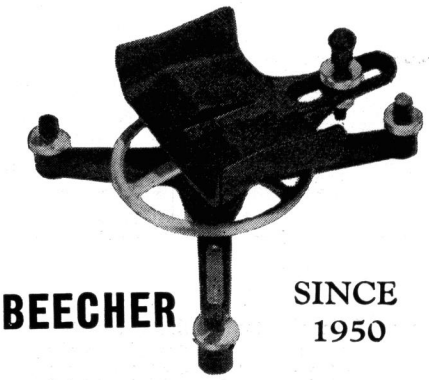
I liked your little editorial comment on a more democratic way of running our Association, a way in which the average shooter could have a voice, and a method for determining just what the shooters who annually subscribe to our Association would prefer. We have never made it possible or even tried very hard to hear the soft voice of the unhappy and dissatisfied. There must be a better way than the one we are following, and I look forward to the time when it will be developed and practiced.

I also like the article on primers. I have done a lot of experimenting myself, and even tried the pictures, but if a further study is carried on, I am sure that the photographic method can be closely correlated with primer performance. It seems to me, however, that a lot of tests will have to be made before we can feel we are on safe ground preferring one primer over another. My feeling is that most primer troubles occur after the product leaves the manufacturer's plant. No matter how careful he is, damp or adverse conditions will nullify his best efforts, and the fellow who carelessly seats his primer roughly or with the wrong tool will likewise upset the quality that the manufacturer has incorporated at the time of making.

When I first glanced at the little article entitled "Accuray Facts" I took it to be just another series of extracts in a government report. I have thought about it more and recognize that they are discovering to some extent much of the dope that this magazine has been printing for years from the benchrest shooters. It is clear to see that they are speaking in terms of one minute of angle while we think in terms of one-half or better as the average performance. If we take that differential into consideration and again look at their report, we can evaluate our own experiences. For instance, one grain variation in weight seems to make little difference in accuracy. Our concept is that more than 1/10 is bad, but then we are shooting bullets of less than ⅓ the weight of the Ordnance bullet and our tolerance for accuracy is generally ⅓ as large as that they ordinarily attain. We would be careless indeed if we shot loads varying as much as a full grain but again our powder charge is only about ½ of the M1 load. I believe it is safe to say that most of the top shooters are very reluctant to lose a single shot because of the slight variation that occurs in thrown charges. When the chips are down, the boys generally weigh the charges and the bullets both, before an important match.

Of course, it is natural that I would be a firm believer in the quality and uniformity of bullets. I have tested too many competitive ones and different lots of my own not to know that bullets make a big difference. Not only do the various lots of jackets differ, but even with the best of efforts by Messrs. B & A, there is some slight variation in the die itself. These variations in material as well as die call for a bullet that is designed to fit the die and material rather than a fixed objective; for instance, of exactly 52 grains. In other words, 51.8 or 52.3 might make in some instances a better bullet than 52. Who knows how good a good bullet is? It certainly takes a lot of testing and as close as

(Continued on Page Fourteen)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Stood Shooting Stuff

(Continued from Page Thirteen)

the modern shooters' bullets are to being perfect, it has been my experience that one particular lot would have to be bad indeed to be 25% poorer than norm, say nothing of the 50% referred to in Item 3 of the magazine article.

Item 5 has been known to the benchrest shooter for nearly a generation now. We long ago learned to be careful of how we chambered our rounds and we have long contended that a case full of powder up to the base of the bullet is usually more accurate than those in which the powder can rattle around. The .219 Don stepped well out in front as it demonstrated this feature frequently against such a similar cartridge as the .219 Zipper or the .219 Improved Zipper. Because many shooters were using the wrong powder and sometimes not enough in their Varminter cases, the Wasp frequently walked off with the prize. Today, .222, .222 Magnum and .243 are typical examples of building in accuracy largely because of the fact that the powder comes close to the base of the bullet and there is no opportunity for the primer flash to strike a variance of powder pellet area from shot to shot.

We have spoken earlier in this article about the importanec of primers and the benchrest shooters have long contended that muzzle velocity was much varied because of primer action. The Ordnance article apparently did not go into the subject of bullet jump vs fitting tight against the lands but those of us who support the theory that a slight jump is safer and better do so on the basis that if our neck tension and bullet size are extremely uniform, then the primer detonation will jump the bullet into the throat and lands with the maximum uniformity. The bullet will be self aligning as it is forced forward in an envelope of gas.

The item on barrel accuracy intrigued me some. We would be hopelessly out of competition if our groups jumped 1/10 inch after 1000 rounds wear in our barrel. We are pretty careful of them and it is undoubtedly true that as they age, some of the accuracy drops off but it cannot be in anywhere near the proportion as that indicated by the Ordnance report or many shooters with barrels that aren't exactly new. As a would not be getting in the top brackets matter of fact, I think we are all apprehensive about discarding our old barrels for fear that the new one won't be quite as good. This apprehension is born of experience that we and others have had and we take a gamble of considerable odds when we order a new barrel with which we hope to win the next big match. Time was when barrels probably took a period of breaking in before they shot their best, and within a few hundred rounds, that oondition probably exists today. Buy one from one of the good makers and then start finding out what the particular barrel likes as far as load and bullet size is concerned. It is my guess that your decision will be much more important to you than it will be to the barrel. When you have an idea in your head that it likes 26.67584 grains of powder and a bullet 52.135 grains, size .224096, don't let anyone talk you out of it but for goodness sake, don't try to talk the barrel manufacturer or the bullet maker into matching your idea in his next delivery.

I promised to tell you a little about the moose hunting trip. The 7 m/m did its part, at least on its second chance. You say, Phil, hunting stories aren't fit news for such a magazine as ours but after I have hunted as many years as I have, I found myself needing a warm-up match for the moose hunting and that is just what my first oppoprtunity turned out to be, at 7:30 on the morning of the first day. Although I don't give much thought generally to those who complain about the big gun shooting from the bench next to them, I am at least a little more sympathetic now. A chap little over ⅓ my age was hunting with me. We and the guide came upon hot tracks and stopped at a high banking at the edge of a little river. Down below us on the opposite side, there was a thick alder growth and every once in a while we could see the alder tops move and hear an occasional cough of a moose. It seemed real close and the tension was building higher and higher as I wondered if there was one or six down there. We never got a glimpse of a rack or ears but occasionally could hear sticks break. It was a thrilling five minutes and then suddenly 150 yards or so down the river on the opposite shore, there bobbed into sight a second or so, a cow moose. I don't know how many times I should have pulled that trigger and didn't but I am certain there is a moose fever that is not as frequently heard of as buck fever. The darn gun barrel was making circles and it wasn't because I was out of breath. I can only say that for the two or three seconds that that moose was there, I could have pulled the trigger and should have pulled the trigger but I know enough about shooting to know that it is a waste of time if the reticule is not on the target. Just as it was about to disappear I did pull the trigger and the moose didn't fall down. As I was bolting in another cartridge, the boy who was just a step in back of me and at my right shoulder let loose with a 375. There were some tree leaves between me and the moose and I couldn't see to shoot again, and would have been worse off to move forward, and would have lost my shoulder had I moved back. As I said before, it turned out to be a warm-up match. I fared better on Wednesday when I chalked up a pretty good bull nearly three times as far away. Newfoundland is a very interesting country and the moose are thick. An Adirondack stump jumper ought to do well—that is, if he didn't get mired down in some of the bogs that I found more akin to the terrain familiar to the Cape Cod clam digger jump shooting ducks in the great marshes. The moose are so thick in some areas that three are allowed each hunter but I found the tall stories of the guides depicting a moose behind every tree similar to the story of guides everywhere of game behind every bush.

Cordially yours,

Ernest Stuhlaeuter

The Information Bench

The Information Bench service is available to all Precision SHOOTING readers. With your questions, send a stamped, self addressed return envelope for a reply. Selected questions and answers, covering as wide a variety of interests as possible, will be published in these columns. Address your questions to the following people.

Rifles, all types, accessorise, handloading, components and shooting methods:—R. W. Lathrop, The Information Bench, 1695 No. Magnolia. Tucson, Arizona.

Sporting handguns and loading—Kent Bellah, Saint Jo, Texas.

Question: Would it be possible to weld the face of a 98 Mexican Mauser bolt (machine and re-heat treat) and fit a 722 Rem. ejector? W. C. Roberts, Parkersburg, W. Va.

Answer: Yes, sure it is possible to weld up a Mauser bolt and convert it to something like a Rem. 722.

However, I do not think you should attempt any such operation. I do not know of anyone doing this job. It requires careful know-how and exacting heat treatment, not usually found. It is not worth the trouble.

I presume that what you want is a small bolt head for the .222 and if so, do not worry. We have a great many times simply cut off the hook of the regular Mauser extractor, shaped and silver soldered on a new and longer hook. This will not hold the case for good ejection but ejection is not needed in any bench rest work. This longer hook will pull the case for easy pick-out with the hand.

If you are going to any expense in making up this proposed job $ would much suggest that you start with a 722 or like action. The Sako is also good, as is the Shilen. The fit of the bolt body and head in the receiver is very important and not many Mauser actions are good in this respect. R. W. Lathrop.

Question: I have a .308 Winchester in the Savage 110 MCL for which I will reload my ammo with 150 grain Round Nose Hornady and also the 125 grain Sierra Spitzer bullets for Varmint and long range shots at deer.

Is it possible to vary the above two loads so that I can shoot both with one sight setting, even if it would mean only practical hunting accuracy? If so. please recommend some loads for both combinations which will give me near maximum velocity. Fred Avallone, Merchantville, N. J.

Answer: The problem that you pose is one that can only be worked out by actual shooting. You should have no trouble at all in getting practical hunting accuracy with these two bullets at reasonable range. Any of the well balanced loads should give you that. However, if you want real varmint accuracy and expect to change bullets from shot to shot, you are in for trouble. They are not likely to have the same point of impact out at 150 yards or more unless by accident. If you are using near maximum speed, as you suggest, the velocity range between the two bullets will be near 400 fps and because of the resulting difference in drop and barrel vibration they cannot have the same point of impact. Then, too, the round nose bullet is not the best type for long range.

I would suggest about 48 grains of 3031 powder behind the 125 grain bullet which should give you close to 3200 fps. Behind the 150 grain bullet I would suggest about 46 grains of 4064 which should turn up about 2800 fps.

Remember that these are near top loadings and you should work up to them with caution, keeping in mind that different guns respond differently to like loads.

I am quite sure that you will be better off with a 150 grain spitzer for your long range deer loads. The 125 grain bullet in .30 cal. is fine for varmint and target up to say 250 yards but the 150 will be much more effective on deer at that range, or any range for that matter. R. W. Lathrop

7.65 ARGENTINE MAUSER AMMO CORRECTION: The announcement by NORMA-PRECISION that "Both unprimed cases and bullets are available separately" for the 7.65 Argentine Mauser rifle was made in good faith at the time. It is now found that the separate components for the ammunition **will not** be available. The loaded ammunition will be available, primed with Boxer primeds and reloadable. NORMA-PRECISION and PRECISION SHOOTING both regret that this error should have been made, even in the good faith that it was.

LETTERS

LIKES WEATHERBY MARK-V

Mr. Teachout:

Gets under my skin why some guys knock a rifle and don't even own a Mk-V Weatherby, ref. to Capt. R. Hornbeck; how does he qualify to knock a rifle and hasn't the Mk-V to give it a good going over in the field and on the target?

I have two of these rifles, one a light 7 m/m Mag. and the other a trial horse action that my brother and I have tried a few wildcat numbers on, such as the 378-30, the 300 and the Super 7 m/m on the 338 brass.

I've found the Mk-V Weatherby a Godsend as an experimenter goes—just turn back to the years when a guy didn't have the strong actions like we have today. I only have praise for the fine action.

As for split stocks, I can name some very fine commercial makes that have split with the .300 wildcats. Mebby I'm lucky as stocks go, haven't had that trouble yet. And the stuff I put thru these guns ain't reduced loads!

I've owned about every action on the market, and after over 30 years of headaches, heartbreaks and set-back actions, I for one am glad to state and put on top of the pile the Mk-V as the strongest action we have today. It's not the perfect action, but for the hunter and the wildcatter it's tops. The Mk-V wasn't intended for the benchrest clan, it's a good hunting rifle—let's leave it like that.

My brother of Hoyer's Gun Shop just barreled my Mk-V with a Douglas 28 inch barrel, chambered for the 338-7 m/m, which using the 160 grain Sierra bullet and 75 grains 4831 pushed the chronograph to 3325 fps. The rifle is very accurate and shooting over the 600 yard route is something—the mule deer aren't going to like this one.

One last word, the Mk-V is a good hunting rifle; let's give the guy credit for bringing out a new action and rifle to try to suit the most critical and nuttiest bunch of gunbugs in the whole world. J. Hoyer, Twin Falls, Idaho

(Editor's warning: We feel that we have published enough pro and con letters on the foregoing subject and that it is time to calt a halt. The foregoing letter **is the halting point.)**

DISCOVERED BY ACCIDENT: A few issues back one of your readers complained of an over-strong ejector on a Remington action. I accidentally found a cure for this, on a Model 722 in .244 Rem.

For some reason the extractor would lock on the cartridge as the bolt rotated to close. It would then apparently turn free of the case on opening, remain over the ejector and prevent it from working. The cases stayed in the face of the bolt until picked out.

A new extractor fixed this but I kept the old one for use when checking loads from the bench. Thos. E. McNamara, Clay, New York.

REGARDING BARRELS:

Dear Mr. Teachout:

Thanks for the two magazines you sent me. The February 1960 issue had a couple of letters in it that interested me no end. One, "Barrel Stress Relieving," and the other, "Backs Up Harvey Donaldson." I'll put in with the latter writer.

My partner and I have put in a lot of time and money chasing the cause of the so-called Flyer. In so doing we have found out a lot of things that we were only guessing at, and often wrong. If Mr. Shilen thinks a barrel can be cured in the furnace of all its ills, well, he's made a bad guess.

(Continued on Page Sixteen)

RELOADERS

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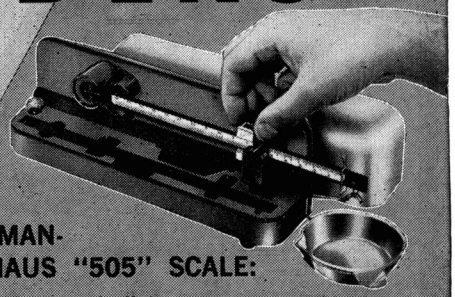

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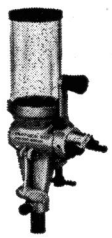

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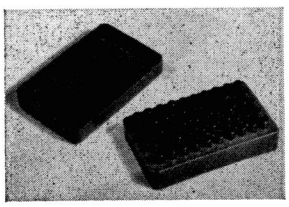

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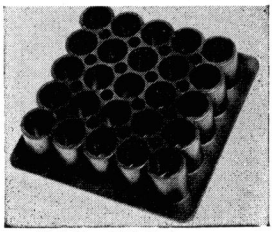

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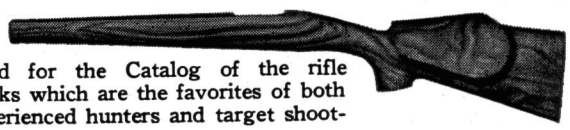

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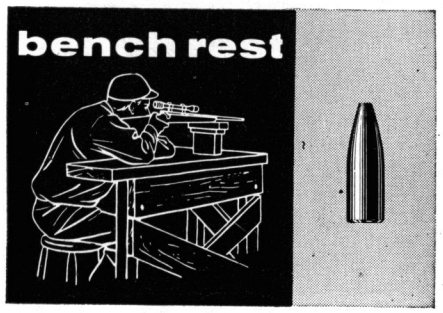

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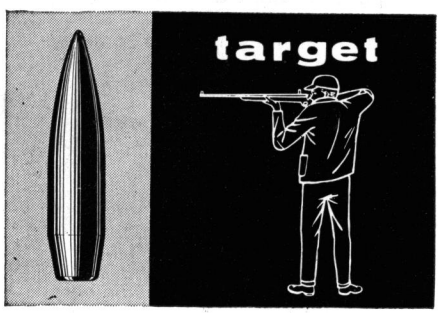

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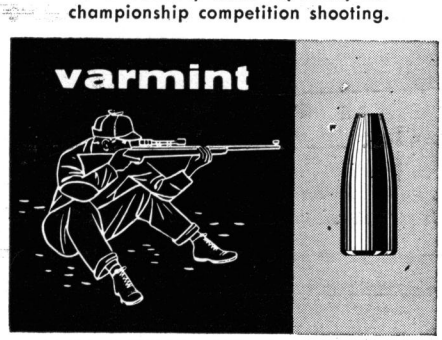

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A "fluted barrel" on heavy varmint rifle from K. E. Smitty's Sport Shop.

A FLUTED BARREL

Illustrated is the fluted barrel of a 6 m/m varmint rifle. The barrel is a 1-12 inch twist Pfeifer Premium Grade, 26" X 1.250" X .900". Flutes are eight in number and cut with a 5/16" ball end mill to .156° deep. Barrel was set level to make flutes uniform in depth. The flutes removed 1 pound and 14 inches of metal. Flutes come to within about 1½ inch from each end.

This outfit (6 m/m International case) seems to like about 30 grains of 4064 and 75 grain bullet. I believe a 1-14" twist would be better. The gun weighs about one or two ounces under 13½ lbs. with Lyman Supertargetspot.

K. E. Smith
Lakeside, Calif.

BALLISTICS TEST REPORT

TEST: Comparison of two barrel lengths in a .357 revolver on velocity with the same ammunition.

PURPOSE: The question frequently arises about difference to be expected when the longer barrel is cut down for easier handling. This test was made to evaluate two guns with the shorter and longer barrels.

PROCEDURE: A batch of ammunition was on hand. It was fired through the chronograph in both guns. The loads being identical, the major variable was the difference between the 5½" and the 8⅜" barrels.

RESULT: 119 f. p. s. velocity difference was found in the averages for the two guns.

LOAD: 156 grain Harvey Jugular Jacketed bullet. 12.5 grains AL-5 powder. .357 Magnum.

CHRONOGRAPH

5½" Bbl.	8⅜" Bbl.
1408 f.p.s	1474 f.p.s.
1338	1510
1374	1496
1376	1492
1382	1496
Avg. 1373	Ave. 1492

Difference—119 f. p. s.

CONCLUSION: Barrel length, as well as other factors, effects the velocity of revolver reloads. The effect varies with the type of load. In this instance about 40 f. p. s. per inch is indicated. With usual revolver velocities, the effect is probably closer to 25 f. p. s. per inch.

E. M. Yard
9-20-61

EXPERIMENTAL BALLISTICS ASSOCIATES
Chronograph tests made 7-15-61
First Annual Chronograph Clinic
R. Ceremsak and S. Glassow collaborating

Letters

(Continued from Page Fifteen)

I use Douglas barrels and they are fine—for my money, tops. I know Douglas and have been in his shop many times. Have watched the methods used to make these barrels. Heat treating does help more ways than a lot of shooters know, but let's look at three 17-22A Douglas Timken barrels that I have made up in the last two years. One for my own use in 6.5 X 280 and two barrels in .30-06 in target weight. Both the .30-06's on M70 actions in Dunlap stocks of laminated beech.

My own on a M70, target weight, 26" long. I was going to pull my pipe and junk it, but decided to see how many rounds it would take to shoot it out. So started out with CCI primers, 58 grains 4831 and 120 grain Sierra Spitzers. At 280 rounds this thing began to shoot. I sat up and took notice. Restocked it with a nice piece of Tiger Tail maple and blued it. Put on a 20X Lyman scope and it has accounted for a lot of chucks this season. At this writing it will put four shots on a 1 inch paster at 100 yards from a cold dry barrel and has 2700 rounds through it.

One of the '06's, owned by Walter Hahn of Pittsburgh, didn't start to shoot till after 300 rounds. The other, owned by Lt. E. J. Nilson, USAF, started to go at under 200 rounds.

So it follows that the structure of the metal must be set to shock rather than stress. I know of no heat treating method for shock. This might be of interest to the writer of, "A Dream Comes True," as he stated he was going to use a Timken by Douglas. Doug's Chrome Moly barrels don't give me as much trouble as the Timken. So, I'll put in with Harvey. Henry Campbell, Pittsburgh, Pa.

THE 6.5 MYTH:

Dear Phil:

Last night I cleaned off my desk and found an unsent letter to you about Bob Stinehour. Now that we have aired our respective views on scoring averages, and the Sept. issue is here, I'd like to comment on both Bob and the 6.5 myth—they tie together!

The 256 Newton was a 6.5 mm. Townsend Whelen warned anyone who bought a used Newton to expect that the stock would be split. I did. It was. 1938. But I expected to convert it to the 6.5 mm MS cartridge, of great fame as a long range killer, albeit its muzzle energy was no more than the 30-30. I had shot record moose with my 54 Win. 270, and my 35 Win. I built on a Krag. The converted Newton with factory 160 gr. bullet was equally effective, in 6.5 cal. All kills were at short range, however.

There were unusual engineering features posessed by the Newton that are overlooked. The front guard screw was hinged to the magazine floor plate, which could be used as a screw-driver for his

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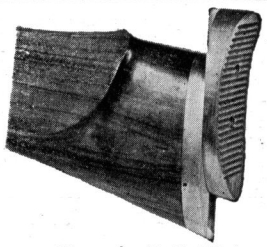

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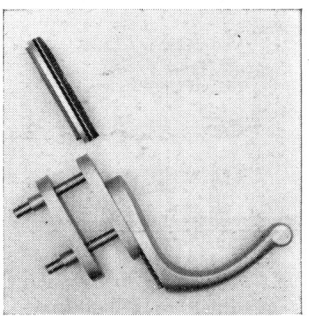

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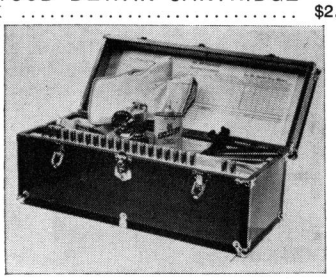

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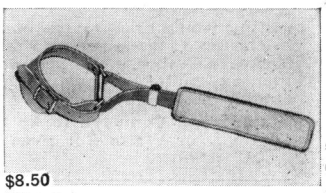

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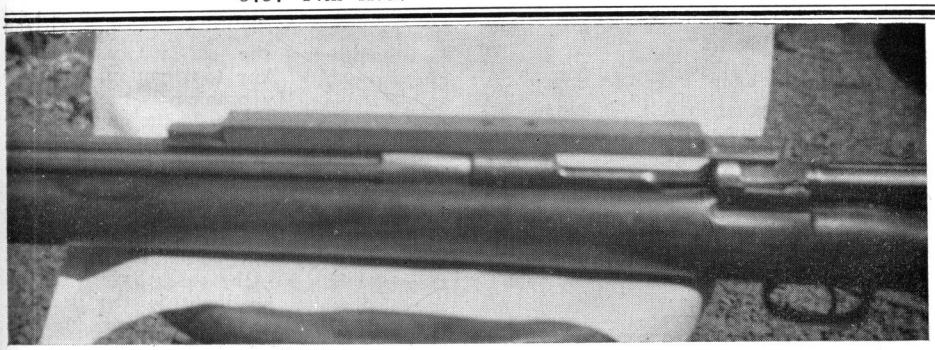

Long base or rib for target scope.

quick take down feature. The trouble was that when the floor plate was aligned, then the screw might still be loose. There was an ingenious but hidden take-up method to overcome this unhandy detail. I killed it. The rear tang feature (copied by the Jap '38 6.5) I also removed before I restocked.

My rifle is an original Buffalo Newton with 5 groove segmental rifling, 1/10 twist. It should not stabilize a 160 gr. bullet. Newton's standard load was 127 gr. My test firing confirmed that bullets key-holed at 100 yards. But they stabilized out yonder and I could hit rocks at 400 yards without trouble. My Alaskan scope may have been one of the first year's production.

Anyone fooling with a 6.5 should stick to lighter bullets. In my book (and I can prove it) 160 gr. is too much lead even in a Magnum with MG powder. It is way over bore capacity in 6.5 mm, for all it has killed

(Continued on Page Eighteen

A LONG SCOPE BASE

The scope base or rib illustrated is a piece of ½" X ¾" X 12" ground Starrett tool steel. (I believe cold rolled would be OK and not nearly so expensive.) The rib has bases for target scope milled front and rear. It was contoured underneath to fit a Mauser 98 receiver. It is held to receiver with two 6-48 screws at front of receiver and one screw at rear. The rib does not touch the barrel forward of the receiver.

I believe it has merit inasmuch as where there is heat in metal, there is expansion and movement—I would say that 150° to 200° F will elongate a barrel .020" to .030".

K. E. Smith Lakeside, Calif.

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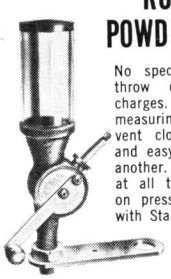

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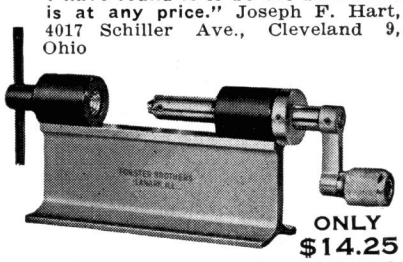

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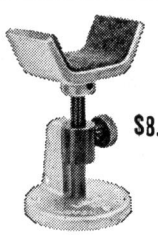

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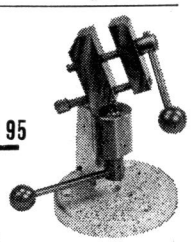

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Letters

(Continued from Page Seventeen

elephants—and what hasn't, including arrows? I sometimes wonder about that key-holing at short range—could be lethal if not too accurate. Maybe Elmer Keith could expand on that aspect. He likes over-heavy bullets, even if they don't give full energy safely with present powders. Do they key-hole? Gilbert Emerson, New Jersey.

BRITISH TEXTBOOK REPRINT:

. . . . I see that at last there is a reprint available of the British Textbook Of Small Arms 1929, though it seems to be about 75 pages shorter. Ray Riling Arms Books Co., 6844 Gosten St., Philadelphia 19, Pa. has it. Last original I heard of being sold brought 30 times its original price. Bob Snowball, Montreal.

BAIT

Dear Phil:

Of the "Big Three," Precision Shooting, The Rifleman and Guns, Precision Shooting is by far the most looked forward to of them all. After so much anticipation it is most disappointing not to find a choice morsel of information on the mechanics of bench rest guns, cases, bullets, or related subjects. I ain't blaming you, because it is realized that you have to depend on the guys "in the know" to furnish you with information for publication. Guess it is like Paul Gottschall said in February '59 issue of Precision Shooting, "Most of us bench rest shooters have had so many things, which we were convinced of at one time, turn out to be merely circumstance and not even important, that we are slow to get out on a limb with a positive statement."

I bet Mr. Gottschall, like myself and a lot more people, have been able to gain information by making a positive statement on some subject that was not exactly clear to us. Nine times out of ten, one will wind up knowing what the other guy knows—, plus what one already knows. It always works better than a direct question? Me-? Well, information is what I'm after, so here is the bait.

Case neck to chamber neck fit: All standard sizing dies that I have seen work the case necks too much. 'Wonder why? For my two 30-06 and .270, I just live with it. 'Reason is those sizing dies cost money. Not so with my true love .22-250's. 'Hope my wife don't read this, but a hundred bucks won't cover the cost of case making and sizing equipment for those little fellows! For the skeptical, it is my opinion that the small high-speed numbers will eventually predominate. Like when one can buy bullet jackets of Kampen material and Sierra shape. Anyhow, a chamber cast of my .22-250's ain't the size that the books say it is, and if you just neck down a .250-3000 to 22-250 you have room to rent between the case neck and chamber neck. Both chambers were made by well known gunsmiths in different parts of the country. They are most identical. By extending an empty case neck with lead and closing the bolt on it in chamber the length of the chamber neck was determined. This was some .053" longer than book dimension of the case neck. (This dimension is hard to measure off a chamber cast.) A horizontal half-cast of the chamber cast is a good case gauge however.

In using '06 brass, any dimension can be obtained for the .22-250 cases. (Fun ain't trouble!) Any tool you mention for this, I have. My problem is the time and place for testing results in the gun. Accuracy is secondary at the moment, I know it's there if the right flavor is in the cake. From the limited amount of fire forming the cases, everything is working just fine—except excessive blacking of the case necks and case shoulders not expanding out as they should. No, the cases have not been annealed which, no doubt, is the problem. Somewhere, some place, somebody described annealing case necks and shoulders in melted lead. 'Wish that article could be located again, because that seems the most logical way to do it. There is no intention of reducing the case neck thickness. Intentions are to get a perfect case neck fit to chamber neck, including the bevel at chamber neck. With Paul Gottschall's #4 taper pin reamer working the inside of case necks a little bit combined with a slight hollow-base bullet with two diameter pressure ring, there ought not to be any powder gas leak at all. Something else that works for me; the slight shoulder left on the case neck after outside trimming with a Forster trimmer is nicely removed with a small

(Continued on Page Nineteen)

TRADIN' POST

Classified type ads; no display. **Rates:** — 10¢ per word per insertion, prepaid. Minimum charge $1.00. Closing date for ads is the last Saturday of the month preceding publication.

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Tournament Circuit

(Continued from Page Nine)

J. Day, IHC, third with 1589-93. High three in the iron sight division were R. Young, Valley City, 1590-99x, D. Knoop, North Dayton, 1590-99x, and R. Rarick, North Dayton, 1590-97x.

Letters

(Continued from Page Eighteen)

round straight taper chain saw file. So much for that.

'Wonder how many fellows, besides myself, are getting the message from between the lines in Precision Shooting that the true bench rest guns, and the original intentions of the Organization, are on the way out? Although because of having to work for a living and using vacation time to visit my relatives, and the wife's relatives, I cannot attend the matches; nonetheless, there is not a more "dyed in the wool" Benchrester in the country, and it grieves me greatly to realize that the recreation I was looking forward to, in the not too distant future, will have been dissolved. "Integrate with the tin can shooters" advocates, "Look like a gun" advocates, and even outside publications are all, slowly but surely, getting what they want. Or, is that what they really want? To me, any kind of integration is bringing the majority down to the minority—not bringing the minority up to the majority! Think it over. A member writes that he is greatly concerned about the "Return to battery" rests—then contradicts himself in that same, or another, article that these rests are no good for doping wind. Whatinthehell!? Unrestricted guns and rests should be **UNRESTRICTED!** If a citizen wants to enter a gun with a barrel ninety-nine yards long, with a support every foot, let him. It's his business to get the damn bullet out the barrel! Why not try completely unrestricted matches—guns and rests? That would really be something! Doak Criss, Louisiana.

SHOTGUN PRIMERS:

Dear Phil:

Have read with considerable interest about Mr. Burris' photo experiments with primers, in the September issue.

I would like to add more complications and more work to this fine job being done by Mr. Burris.

Let us presume that every fine bench-rest rifle hits every primer just the same blow, and that the fellows who load the ammo for these guns seat every primer just right, in a perfect pocket. We know, however, that these conditions cannot prevail for thousands of handloaders, who lack the zeal, or the financial resources, to make every load perfect, and to fire them in perfect rifles.

It would be very interesting and informative to test each make and type of primer for uniformity under conditions of a blow which would barely fire them, also comparing these results with full force striking.

My observations have been mainly in the field of shotshell loading, where the factors of primer seating, primer support. and striker force are much more variable than in metallic ammo. I find that some makes and types of primer (especially with some powders) give quite erratic results in guns having marginal firing mechanisms, while the same loads work quite well in other guns. On the other hand, some primers seem to give full performance if they fire at all.

If Mr. Burris (or any other interested experimenter) has the time and resources, I know he would please many shooters by also testing the popular makes of shotgun primers.

I hope you will forgive me for mentioning a shotgun. Don't think I have ever seen one mentioned in this rather "exclusive" magazine. However, I feel that you must have a few more readers like myself, who like anything that shoots. E. W. Meador, West Virginia.

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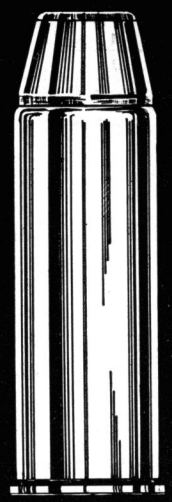

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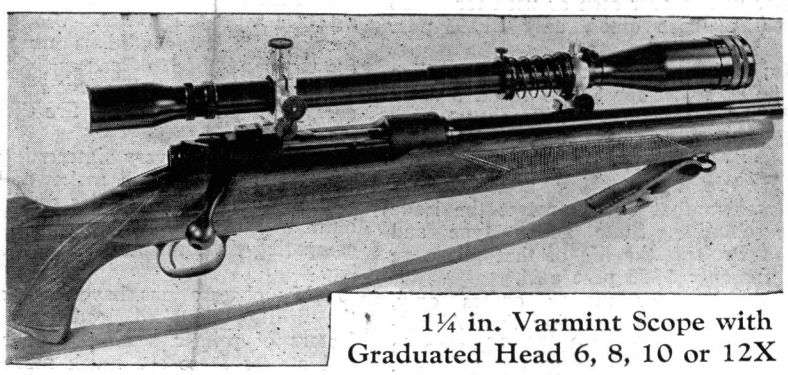

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